



Town Council
Tuesday, September 10, 2024
Public Meeting Room / Eagle Town Hall
200 Broadway Eagle, CO

*This agenda and the meetings can be viewed at www.Townofeagle.org.
Times listed are approximate and are subject to change.*

TOWN COUNCIL MEETING ACCESS INFORMATION AND PUBLIC PARTICIPATION *This will be an in-person meeting using Teams. Please note: All participants must remain muted until they are requested to speak. This will reduce background noise disruptions to the meeting attendees. When it's your turn to speak, you will have three (3) minutes for public comment. PUBLIC COMMENTS: If you are unable to attend, public comments regarding any items on this agenda can be submitted to Jenny Rakow, Town Clerk, and will be included as part of the record. For technical difficulties, please email jenny.rakow@townofeagle.org and we will do our best to assist you.*

1. **Microsoft Teams meeting**

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CALL TO ORDER - 6:00 PM

ROLL CALL

ADOPTION OF AGENDA *Opportunity for amendment or deletions to the agenda.*

PUBLIC COMMENT - 6:05 PM *Citizen public comment offers an opportunity for citizens to express opinions or ask questions regarding town services, policies, or other matters of community concern, and any items that are not on the agenda. Please attempt to keep comments to three (3) minutes; time limits are established to provide efficiency in the conduct of the meeting and to allow equal opportunity for everyone wishing to speak. When appropriate, any questions by the public during public comment will be followed up on by the Town Manager and Town staff. Those who are speaking are requested to state their name and address for the record.*

CONSENT AGENDA - 6:10 PM *Consent agenda items are routine Town business, items that have received clear direction previously from the council, final land-use file documents after the public hearing has been closed, or which do not require council deliberation.*

1. Minutes - August 27, 2024
2. Bill Pay - August 2024

3. Resolution 57, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Final Plat for 7 Hermits Condominiums Filing 4".
4. Resolution 58, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving the First Amendment to the Development Agreement for 263 Sawatch Road".
5. Resolution 59, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Reimbursement Agreement with Red Mountain Ranch LLLP"
6. Cemetery Tank Replacement Approvals
 - a. Resolution 60, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to execute the Construction Contract with Pheonix Industries LTD. for the Cemetery Tank Replacement Project"
 - b. Resolution 61, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Temporary Construction Easement Agreement with Eagle Cemetery District for the Cemetery Tank Replacement"
 - c. Resolution 62, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Utility Easement Agreement with Eagle Cemetery District for the Cemetery Tank Replacement"
 - d. Resolution 63, 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Permanent Utility Easement Agreement with Kaibab Homeowners Association for the Cemetery Tank Replacement"
 - e. Resolution 64, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Utility Easement Agreement with Margarita Padilla and Daniel Martinez"

STAFF REPORTS - 6:15 PM *The Town Manager and department staff prepare and provide internal updates to the council.*

1. Town Manager Update
2. Department Update

COUNCIL DISCUSSION AND FUTURE AGENDA ITEMS - 6:20 PM *Council will use this time to propose future agenda items, provide updates on Council Committees, and address general discussion items.*

ADJOURN - 6:25 PM

I hereby certify that the above Notice of Meeting was posted by me in the designated location at least 24 hours prior to said meeting.



Jenny Rakow, CMC
Town Clerk

PUBLIC WIFI – Eagle Guest



MEETING MINUTES
Town Council
Tuesday, August 27, 2024
Public Meeting Room / Eagle Town Hall
200 Broadway Eagle, CO

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TOWN COUNCIL MEETING ACCESS INFORMATION AND PUBLIC PARTICIPATION *This was an in-person meeting using Teams.*

CALL TO ORDER - 6:00 PM

Mayor Turnipseed called the meeting to order at 6:00 p.m.

ROLL CALL

COUNCIL MEMBERS PRESENT

Mikel Kerst, Scott Turnipseed, Ellen Bodenhemier,
Geoffrey Grimmer (remote), Nick Sunday, Jamie
Woodworth Foral, Bryan Woods

COUNCIL MEMBERS ABSENT

None

STAFF PRESENT

Larry Pardee, Town Manager
Melissa Daruna, Assistant Town Manager
Ruthanne H. Goff, Town Attorney
Jenny Rakow, Town Clerk
Carrie Buhlman, Police Chief
Tom Gosiorowski, Public Works Director
Peyton Heitzman, Community Development Director
Jessica Lake, Senior Planner
Molly Furtado, Special Events Manager
Sydney Dynek, Planner
Jamie Wilson, Communications & Marketing Specialist
Kira Koppel, Sustainability Specialist
Ryan Goebel, IT Analyst
Kevin Aoki, Information Technology Manager
Nikki Davis, Economic Development & Housing Specialist

ADOPTION OF AGENDA

MOTION: Council Member Nick Sunday motioned to adopt the agenda as presented. The motion was seconded and passed with a vote of 7 in favor (Kerst, Turnipseed, Bodenhemier, Grimmer, Sunday, Woodworth Foral, and Woods) and 0 opposed.

PUBLIC COMMENT

Tim McMahon Avon – requested the Town of Eagle sign a support letter to CDOT to put up suicide barriers on the green bridge in Red Cliff.

CONSENT AGENDA

MOTION: Council Member Bryan Woods motioned to approve the consent agenda. The motion was seconded and

passed with a vote of 7 in favor (Kerst, Turnipseed, Bodenhemier, Grimmer, Sunday, Woodworth Foral, and Woods) and 0 opposed.

1. Minutes - August 13, 2024
2. Resolution 52, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Final Plat for Adams Way Townhouses"
3. Resolution 53, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Final Plat for 7 Hermit Condominiums Filing 3"
4. Resolution 54, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Resident Occupied Deed Restriction for 7 Hermit Condominiums at Haymeadow"
5. Resolution 55, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Professional Services Agreement with Logan Simpson for the Affordable Housing Accelerator Project"

STAFF REPORTS

1. Town Manager Update

BUSINESS ITEMS

1. Resolution 56, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Accepting a Petition for Annexation of a Parcel of Land Located in Unincorporated Eagle County and Setting a Public Hearing on the Annexation (West Eagle Housing Annexation)"
Peyton Heitzman presented this item.

MOTION: Council Member Nick Sunday motioned to approve Resolution 56, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Accepting a Petition for Annexation of a Parcel of Land Located in Unincorporated Eagle County and Setting a Public Hearing on the Annexation (West Eagle Housing Annexation)". The motion was seconded and passed with a vote of 7 in favor (Kerst, Turnipseed, Bodenhemier, Grimmer, Sunday, Woodworth Foral, and Woods) and 0 opposed.

COUNCIL DISCUSSION AND FUTURE AGENDA ITEMS

Council Member Sunday - thanked Molly Furtado for the Community Table event.

Council Member Woodworth Foral also thanked Molly and public works for the event and clean up.

EXECUTIVE SESSION - 6:20 PM

MOTION: Council Member Scott Turnipseed motioned to enter into an Executive Session To consider the purchase, acquisition, lease, transfer or sale of real, personal or other property, pursuant to C.R.S. § 24-6-402(4)(a) specifically to discuss the Old Town Hall located at 108 West Second Street and to hold a conference with the Town Attorney to receive legal advice on specific legal questions, pursuant to C.R.S. § 24-6-402(4)(b), regarding Helen Jane Tully v. Terrace Homeowners Association B, Inc. v. Town of Eagle, Case No. 2023CV30104. The motion was seconded and with a vote of 6 in favor, 0 opposed and 1 recused. *Mikel Kerst recused himself from this discussion and left the room.*

ADDITIONAL BUSINESS ITEM

1. Direction regarding purchase, acquisition, lease, transfer, or sale of real, personal, or other property.
MOTION: Council Member Scott Turnipseed motioned to direct staff to pursue obtaining an appraisal of the Old Town Hall. The motion was seconded and passed with a vote of 6 in favor (Turnipseed, Bodenhemier, Grimmer, Sunday, Woodworth Foral, and Woods), 0 opposed, and 1 recused (Kerst).
2. Consideration of Settlement Agreement Relating to Case No. 2023CV30104.
MOTION: Council Member Nick Sunday motioned to authorize the mayor to sign the settlement agreement. The motion was seconded and passed with a vote of 6 in favor, 0 opposed, and 1 recused (Kerst).

ADJOURN - 6:35 PM

MOTION: Council Member Mikel Kerst motioned to adjourn. The motion was seconded and passed with a vote of 7 in favor (Kerst, Turnipseed, Bodenhemier, Grimmer, Sunday, Woodworth Foral, and Woods) and 0 opposed.

Date:

Scott Turnipseed, Mayor

Jenny Rakow, CMC Town Clerk

**BILL SCHEDULE
AUGUST 2024**

GENERAL FUND

General Government

CEBT	Health & Life Ins. Payable	\$	3,787.06
Bent, Kathryn	Professional Services/E-Bike Grant		1,699.00
Boyd, Mary	Professional Services/E-Bike Grant		1,895.00
Economic & Planning Systems, Inc.	Professional Services		4,912.50
KLJ Engineering LLC	Professional Services-Grant Writing		1,952.24
Poulios, Demetrius	Professional Services/E-Bike Grant		2,000.00
Hoffman, Parker, Wilson & Carberry PC	Legal - General		4,500.00
King Soopers Customer Charges	Meeting Expense		23.93
Pazzo's	Meeting Expense		238.95
Elected Leaders	Tuition & Books		99.00
Total General Government		\$	21,107.68

General Administration

313 Chambers LLC	Utility Overpayment Refund	\$	145.77
Baker, Adam	Utility Overpayment Refund		73.11
Barnwell, Jay	Utility Overpayment Refund		69.00
Foozes1 LLC	Utility Overpayment Refund		166.60
Fritts, Kelsey	Utility Overpayment Refund		220.66
Keyes, Jerome W Or Barbara D	Utility Overpayment Refund		109.63
My Property LLC	Utility Overpayment Refund		18.13
Pastalan, Becky	Utility Overpayment Refund		24.13
Price, Austin & Bruce, Allison	Utility Overpayment Refund		24.08
Reid, Amy	Utility Overpayment Refund		123.03
Roden-Johnson, Dustin Or Lizabeth	Utility Overpayment Refund		46.39
Shoulder, Matt	Utility Overpayment Refund		354.92
Eagle County Clerk & Recorder	Other Prepaid Expenses		1,200.00
CEBT	Health & Life Ins. Payable		2,922.56
Family Support Registry	Misc Deductions Payable		146.76
Aguilar, Monica	Facility Usage Deposit Refund		245.00
Blanco, Yolanda	Facility Usage Deposit Refund		750.00
Chavez, Doraly	Facility Usage Deposit Refund		375.00
Cunning, Lara	Facility Usage Deposit Refund		750.00
Eagle Mushroom & Wild Food Festival	Facility Usage Deposit Refund		750.00
Eagle Valley High School	Facility Usage Deposit Refund		750.00
Frost Creek	Facility Usage Deposit Refund		750.00
Garduno, Enrique	Facility Usage Deposit Refund		495.00
Grimaldo-Gutierrez, Gustavo	Facility Usage Deposit Refund		350.00
Harakal, Agnes	Facility Usage Deposit Refund		750.00
Hernandez, Jose	Facility Usage Deposit Refund		375.00
Landeros, Dackssiry	Facility Usage Deposit Refund		620.00
United Methodist Church Of Eagle Valley	Facility Usage Deposit Refund		650.00
Vail Valley Young Life	Facility Usage Deposit Refund		1,050.00
CEBT	Health & Insurance Benefits		4.50
CEBT	Health & Life Ins. Payable		7,604.01

General Administration (Cont.)

Signature Signs Inc	Office Supplies	45.00
Flower Hound Co	Employee Appreciation	200.00
Pitney Bowes Global Financial Services	Communication & Shipping	65.82
Column Software, PBC	Legal Notices	108.02
Mail Chimp	Dues & Subscriptions	132.00
Mountain Careers	Dues & Subscriptions	159.00
Indeed	Recruitment	136.77
Founders Place Condo Association	Employee Housing Rental Exp	968.00
Trybe Property Management LLC	Employee Housing Rental Exp	2,952.99
Chase Paymentech	C.C. Transaction Fees	309.91
Xpress Bill Pay	C.C. Transaction Fees	53.59
Employer's Council Services, Inc.	Professional Services	523.75
Peak Performance Imaging	Professional Services	112.50
Hoffman, Parker, Wilson & Carberry PC	Legal	4,005.64
Debtbook	Auditing & Accounting	8,000.00
Caselle, Inc.	Computer Support	1,767.04
Xpress Bill Pay	Computer Support	50.00
Pickled	Meeting Expense	133.98
Yeti's Grind	Meeting Expense	19.92
Colorado SHRM	Tuition & Books	899.00
GFOA	Tuition & Books	35.00
Cirsa	Insurance - Pavilion	3,151.52
Total General Administration		\$ 45,742.73

Community Development

CEBT	Health & Life Ins. Payable	\$ 6,586.72
Fleet Services	Fuel	49.51
American Planning Association	Recruitment	295.00
Colorado Mtn. News Media	Recruitment	501.80
Indeed	Recruitment	38.70
Baseline Engineering Corporation	Professional Services	1,786.75
Garfield & Hecht, P.C.	Planning Reimbursable	3,802.06
Hoffman, Parker, Wilson & Carberry PC	Planning Reimbursable	2,863.00
Kipp Land Surveying LLC	Planning Reimbursable	1,025.00
LRE Water	Planning Reimbursable	768.00
Mott Macdonald	Planning Reimbursable	6,881.50
Hoffman, Parker, Wilson & Carberry PC	Legal	1,154.13
Total Community Development		\$ 25,752.17

Municipal Court

CEBT	Health & Life Ins. Payable	\$ 259.81
Caselle, Inc.	Computer Support	286.29
Churches, Julie	Travel Expense	512.67
Ace Security And Safety Services LLC	Contract Payments	297.00
Total Municipal Court		\$ 1,355.77

Streets

CEBT	Health & Insurance Benefits	\$	5,130.64
Amazon	Office Supplies		7.20
Cintas Corporation	Office Supplies		33.83
Big State Industrial Supply Inc	Operating Supplies		287.28
Glenwood Springs Auto Parts Inc (Napa)	Repair & Maintenance Supplies		137.20
Grainger	Repair & Maintenance Supplies		1,256.10
Gypsum Eagle Ace Hardware	Repair & Maintenance Supplies		110.43
Lawson Products	Repair & Maintenance Supplies		637.78
O.J. Watson Company, Inc.	Repair & Maintenance Supplies		489.98
Wagner Equipment Co	Repair & Maintenance Supplies		17.26
Whitehall's Alpine BG	Repair & Maintenance Supplies		158.76
Glenwood Springs Auto Parts Inc (Napa)	Vehicle Repair & Maintenance Supplies		243.20
Fleet Services	Fuel		1,065.12
Holy Cross Energy	Utility Services		3,898.33
KLJ Engineering LLC	Professional Services-Transportation Plan		30,696.58
GM Asphalt Repair	Street Resurfacing		46,721.95
Caselle, Inc.	Computer Support		18.85
Mountain Dog Tree Care, LLC	Tree Management-Comm Forestry		8,035.00
Caterpillar Financial Services	Winter Snow Equipment Rental		29,400.89
Wilson, Stephan	Meeting Expense		150.00
Total Streets		\$	128,496.38

Public Safety

CEBT	Health & Life Ins. Payable	\$	26,787.63
Amazon Capital Services	Office Supplies		150.31
Amazon Capital Services	Operating Supplies		415.81
City Market	Operating Supplies		154.04
Magnum Electronics Inc	Operating Supplies		333.08
Wal-Mart	Operating Supplies		69.92
Amazon Capital Services	Uniforms		(15.86)
Galls, LLC	Uniforms		360.94
JB T-Shirts Silkscreen & Embroidery	Uniforms		114.00
Eagle County Fleet Service	Vehicle Repair & Maintenance Supplies		229.50
Fleet Services	Fuel		4,015.26
Adamson Police Products	Equipment (Non-Capital)		691.00
Amazon Capital Services	Equipment (Non-Capital)		1,742.71
Bearcom	Equipment (Non-Capital)		385.78
National Assoc Field Training Officers	Dues & Subscriptions		40.00
AT&T Mobility	Utility Services		812.38
Indeed	Recruitment		34.41
Psychological Dimensions, LLC	Recruitment		375.00
Eagle County Sheriff's Office	Professional Services		1,920.00
National Velvet	Professional Services		272.95
Psychological Dimensions, LLC	Professional Services		2,925.00
Eagle County Fleet Service	Repair & Maintenance Services		1,738.00
Smartforce	Computer Support		28.08
Doubletree	Travel		773.51
Marriott Atlanta	Travel		(6.24)

Public Safety (Cont.)

Psychological Dimensions, LLC	Training & Travel - Grants	2,925.00
Springhill Suites	Training & Travel - Grants	203.81
Yard House	Training & Travel - Grants	27.48
Axon Enterprise, Inc.	Tuition & Books	943.92
Cameo Shoot & Education Center	Tuition & Books	120.00
NASRO	Tuition & Books	400.00
Rocky Mountain Chapter FBI NAA	Tuition & Books	525.00
Rowe, Eleanor May	Tuition & Books	900.00
Eagle County 800 Mhz Operations	Radio Access	27,214.79
Steven A. Nofziger	Contract Payments	200.00
Lexipol LLC	Lexipol Policy	5,532.47
Eagle Climbing + Fitness, LLC	Event Production	1,000.00
Gregg Elements	Event Production	500.00
Total Public Safety		\$ 84,839.68

Buildings & Grounds

CEBT	Health & Insurance Benefits	\$ 8,992.40
Amazon	Office Supplies	7.20
Cintas Corporation	Office Supplies	33.82
Wylaco Supply Co	Operating Supplies	22.50
Ferguson Enterprises, Inc.	Repair & Maintenance Supplies	882.60
Geary Pacific Corporation	Repair & Maintenance Supplies	97.20
Glenwood Springs Auto Parts Inc (Napa)	Repair & Maintenance Supplies	147.86
Grainger	Repair & Maintenance Supplies	128.44
Gypsum Eagle Ace Hardware	Repair & Maintenance Supplies	330.10
Home Depot	Repair & Maintenance Supplies	7.30
Mark's Plumbing Parts	Repair & Maintenance Supplies	278.14
United Companies	Repair & Maintenance Supplies	1,377.15
Glenwood Springs Auto Parts Inc (Napa)	Vehicle Repair & Maintenance Supplies	480.45
Fleet Services	Fuel	936.95
Grainger	Equipment (Non-Capital)	354.28
Gypsum Eagle Ace Hardware	Janitorial Supplies	75.54
Home Depot Pro	Janitorial Supplies	2,897.67
Black Hills Energy	Utility Services	1,541.84
Holy Cross Energy	Utility Services	3,707.11
Jerrymaster Janitorial	Janitorial Maint. Contracts	4,316.00
Blue Monster Service LLC	Repair & Maintenance Services	1,335.00
Cummins Sales And Service	Repair & Maintenance Services	1,075.52
Mountain Pest Control, Inc.	Repair & Maintenance Services	160.00
Rod's Painting Inc	Repair & Maintenance Services	1,750.00
Sno-White Linen Rental	Repair & Maintenance Services	308.28
Trane U.S.	Repair & Maintenance Services	1,749.00
Vail Honeywagon	Repair & Maintenance Services	86.43
Caselle, Inc.	Computer Support	18.85
Wilson, Stephan	Meeting Expense	150.00
G H Daniels III & Associates	Contract Payments	10,000.00
Total Buildings & Grounds		\$ 43,247.63

Events

CEBT	Health & Life Ins. Payable	\$	2,417.04
Costco	Office Supplies		137.84
Capitol Theatre Eagle	Operating Supplies		40.00
Apple.Com	Dues & Subscriptions		12.02
ASCAP	Dues & Subscriptions		446.82
Canva	Dues & Subscriptions		14.99
Color Coffee Roasters	Meeting Expense		62.55
Domino's	Meeting Expense		67.26
Eagle Lions Club	Meeting Expense		130.00
Flavor Stop	Meeting Expense		213.30
Pazzo's	Meeting Expense		227.80
Wild Sage	Meeting Expense		55.45
Yeti's Grind	Meeting Expense		34.51
Habitat For Humanity Vail Valley, Inc.	Events		500.00
Triple Crown Sports	Events		1,000.00
Ace Hardware	Event Production		38.00
Amazon	Event Production		700.82
Capitol Theatre Eagle	Event Production		140.00
City Market	Event Production		149.36
Costco	Event Production		208.45
Eagle Climbing + Fitness, LLC	Event Production		1,000.00
Everyday Outfitters	Event Production		84.48
EVHS Dance Team	Event Production		960.00
Givebutter	Event Production		102.27
Kokopelli Music And Sound, LLC	Event Production		2,000.00
Miller Visual Arts	Event Production		128.59
Sage Outdoor Adventures LLC	Event Production		3,000.00
Seagull's Cycles	Event Production		75.00
Sign Gypsies Vail Valley	Event Production		196.00
Wal-Mart	Event Production		90.35
Wishes The Toy Store	Event Production		54.70
Total Events		\$	14,287.60

Engineering

CEBT	Health & Insurance Benefits	\$	4,402.94
Amazon	Office Supplies		7.20
Cintas Corporation	Office Supplies		33.82
Two Valley Tire LLC	Vehicle Repair & Maintenance Supplies		440.24
Fleet Services	Fuel		152.50
Two Valley Tire LLC	Repair & Maintenance		57.20
Total Engineering		\$	5,093.90

Information Technology

CEBT	Health & Life Ins. Payable	\$	2,461.70
Century Link	Utility Services		7,091.22
Northwest Colo Council Of Gov.	Utility Services		53,829.00
Aoki, Kevin	Travel Expense		2,149.50
City Market	Meeting Expense		12.98

Information Technology (Cont.)

King Soopers Customer Charges	Meeting Expense	33.95
Pazzo's	Meeting Expense	577.13
Red Canyon Café	Meeting Expense	74.46
Total Information Technology		\$ 66,229.94

Marketing & Communications

CEBT	Health & Life Ins. Payable	\$ 954.24
Colorado Mtn. News Media	Media	867.99
Total Marketing & Communications		\$ 1,822.23

Total GENERAL FUND**\$ 437,975.71****CAPITAL IMPROVEMENTS FUND**

Native Electric	Public Works Charging Stations	\$ 9,169.63
Martin/Martin Consulting Engineers	Sylvan Lake Road & Capitol Improvments	2,100.00
Kumar & Associates Inc	Street Replacement- Howard St	3,241.40
Martin/Martin Consulting Engineers	Street Replacement- Howard St	1,350.00
Schofield Excavation	Street Replacement- Howard St	80,552.87
Stolfus & Associates	Grand Avenue Improvements	131,337.10
Tapco	Variable Message Board	24,750.00
Chalmers Ford	Multi Purpose Truck	58,735.15
Emich Chevrolet	Multi Purpose Truck	119,219.00
Grainger	Multi Purpose Truck	1,344.32
Greyco Customs	Patrol Vehicles	12,356.36
Total CAPITAL IMPROVEMENTS FUND		\$ 444,155.83

WASTE WATER FUND

CEBT	Health & Insurance Benefits	\$ 6,151.35
Amazon	Office Supplies	7.19
Cintas Corporation	Office Supplies	33.82
Western Slope Supplies Inc	Office Supplies	25.25
Tractor Supply	Uniforms	119.76
American Mechanical Services	Repair & Maintenance Supplies	453.05
Core & Main LP	Repair & Maintenance Supplies	789.49
Grainger	Repair & Maintenance Supplies	147.52
Gypsum Eagle Ace Hardware	Repair & Maintenance Supplies	20.73
Texas Underground Inc	Repair & Maintenance Supplies	1,226.50
Two Valley Tire LLC	Vehicle Repair & Maintenance Supplies	454.18
Fleet Services	Fuel	227.00
Federal Express Corp.	Communication & Shipping	573.71
Nextrust Inc	Communication & Shipping	299.43
Black Hills Energy	Utility Services	238.20
Holy Cross Energy	Utility Services	20,255.47
Indeed	Recruitment	20.87
Your Membership	Recruitment	311.20
Chase Paymentech	C.C. Transaction Fees	835.21
Xpress Bill Pay	C.C. Transaction Fees	468.95
Vranesh And Raishch, Llp	Legal & Audit	354.00

WASTE WATER FUND (Cont.)

LRE Water	Engineering	931.25
Denali Water Solutions LLC	Sludge Disposal	10,221.76
American Mechanical Services	Repair & Maintenance Services	575.00
Browns Hill Engineering	Repair & Maintenance Services	383.25
Eagle County Solid Waste & Recycling	Repair & Maintenance Services	43.00
Two Valley Tire LLC	Repair & Maintenance Services	622.90
Caselle, Inc.	Computer Support	239.66
Colo. Dept. Of Public Health & Env.	Testing & Permits	115.00
Eagle River Water & Sanitation District	Testing & Permits	2,896.50
Seacrest Group	Testing & Permits	1,519.00
SGS North America Inc	Testing & Permits	2,549.98
Holiday Inn	Travel	168.00
Wilson, Stephan	Meeting Expense	150.00
Colorado CWP	Tuition & Books	50.00
Paypal	Tuition & Books	350.00
PSI Services	Tuition & Books	104.00
Browns Hill Engineering	Contract Payments	2,066.20
Mott Macdonald	Capital Expenditures	4,004.75
Yearout Energy Services Co LLC	Capital Expenditures - Solar Project	850,190.70
Mott Macdonald	WW Treatment Plant Improvement	8,328.50
Schofield Excavation	Sewer Line Improvements	39,829.94
Stolfus & Associates	Sewer Line Improvements	6,702.50
Total WASTE WATER FUND		\$ 965,054.77

WATER FUND

CEBT	Health & Insurance Benefits	\$ 9,150.85
Amazon	Office Supplies	7.19
Cintas Corporation	Office Supplies	33.82
Grainger	Operating Supplies	21.18
Gypsum Eagle Ace Hardware	Operating Supplies	1,139.73
PVS DX Inc	Operating Supplies	4,171.84
Univar USA	Operating Supplies	2,992.00
Tractor Supply	Uniforms	156.17
Core & Main LP	Repair & Maintenance Supplies	2,874.19
Davis Plumbing & Drain Cleaning	Repair & Maintenance Supplies	79.50
Grainger	Repair & Maintenance Supplies	625.75
Gypsum Eagle Ace Hardware	Repair & Maintenance Supplies	859.41
Pollardwater	Repair & Maintenance Supplies	2,717.45
Wylaco Supply Co	Repair & Maintenance Supplies	144.00
Two Valley Tire LLC	Vehicle Repair & Maintenance Supplies	330.18
Fleet Services	Fuel	418.27
Gypsum Eagle Ace Hardware	Equipment (Non-Capital)	609.98
Nextrust Inc	Communication & Shipping	299.43
Black Hills Energy	Utility Services	24.52
Holy Cross Energy	Utility Services	20,585.92
Indeed	Recruitment	24.74
Your Membership	Recruitment	466.80
Chase Paymentech	C.C. Transaction Fees	1,417.34

WATER FUND (Cont.)

Xpress Bill Pay
Garfield & Hecht, P.C.
Hoffman, Parker, Wilson & Carberry PC
Badger Daylighting Corp
LRE Water
Blue Monster Service LLC
Browns Hill Engineering
Davis Plumbing & Drain Cleaning
High Country Garage Doors, LLC
Nottingham Excavating & Trucking Inc
Thermo-Fluids, Inc.
Two Valley Tire LLC
Inland Potable Services Inc
Eagle River Water & Sanitation District
Holiday Inn
Lafleur, Thomas
Wilson, Stephan
Caselle, Inc.
Colorado CWP
Browns Hill Engineering
Core & Main LP
Yearout Energy Services Co LLC
Copy Plus
Mott Macdonald
Schofield Excavation
Stolfus & Associates
Total WATER FUND

C.C. Transaction Fees 643.12
Legal 582.00
Legal 1,057.50
Engineering 14,044.44
Engineering 5,582.25
Repair & Maintenance Services 240.00
Repair & Maintenance Services 2,008.00
Repair & Maintenance Services 3,670.50
Repair & Maintenance Services 3,307.80
Repair & Maintenance Services 25,412.33
Repair & Maintenance Services 186.57
Repair & Maintenance Services 42.90
Storage Tank Maintenance 13,600.00
Testing & Permits 434.00
Travel 252.00
Travel 167.50
Meeting Expense 198.13
Computer Support 239.66
Tuition & Books 50.00
Contract Payments 8,264.80
Capital Expenditures 495.00
Capital Expenditures - Solar Project 418,750.64
Tank Replacement 380.00
Tank Replacement 50,594.44
Water Line Improvements 349,901.39
Water Line Improvements 6,702.50
\$ 955,957.73

REFUSE FUND

CEBT
Amazon
Nextrust Inc
Chase Paymentech
Xpress Bill Pay
Blue Monster Service LLC
Blue Monster Service LLC
Vail Honeywagon
Caselle, Inc.
Vail Honeywagon
Total REFUSE FUND

Health & Life Ins. Payable \$ 0.36
Operating Supplies 224.91
Communication & Shipping 299.42
C.C. Transaction Fees 253.09
C.C. Transaction Fees 160.78
Repair & Maintenance Services 120.00
Repair & Maintenance Services 120.00
Repair & Maintenance Services 13,750.12
Computer Support 239.65
Contract Services 79,274.25
\$ 94,442.58

STORM WATER FUND

Nextrust Inc
STORM WATER FUND (Cont.)
Chase Paymentech
Xpress Bill Pay
Total STORM WATER FUND

Communication & Shipping \$ 299.42
C.C. Transaction Fees 25.31
C.C. Transaction Fees 13.40
\$ 338.13

STCIF

Dynamic Program Management, LLC	Pool Rebuild Project	\$ 11,658.46
Ferguson Enterprises, Inc.	Pool Rebuild Project	246.83
Ground Engineering Consultants	Pool Rebuild Project	255.00
JHL Constructors Inc	Pool Rebuild Project	381,201.49
Ohlson Lavoie Corporation	Pool Rebuild Project	55.48
Town of Eagle	Pool Rebuild Project	237,622.24
Wiss Janney Elstner Associates Inc	Pool Rebuild Project	165.00
Backyard Irrigation, Inc.	BMX Park Improvements	141.00
Calibre Engineering Inc	Riverpark - Rapid Blocs	3,196.00
Total STCIF		\$ 634,541.50

OPEN SPACE FUND

CEBT	Health & Life Ins. Payable	\$ 1,132.75
Signature Signs Inc	Office Supplies	14.00
Ferguson Enterprises, Inc.	Repair & Maintenance Supplies	550.20
Wylaco Supply Co	Repair & Maintenance Supplies	241.66
Glenwood Springs Auto Parts Inc (Napa)	Vehicle Repair & Maintenance Supplies	57.30
Signature Signs Inc	Vehicle Repair & Maintenance Supplies	190.00
Fleet Services	Fuel	207.98
Indeed	Recruitment	3.42
Hoffman, Parker, Wilson & Carberry PC	Legal	720.00
Vail Honeywagon	Repair & Maintenance Services	289.62
Momentum Trail Concepts	Trail Repair & Maintenance	8,776.57
Vail Valley Mountain Trails Alliance	Trail Repair & Maintenance	12,118.94
Vail Valley Mountain Trails Alliance	Trail Construction	32,587.67
Total OPEN SPACE FUND		\$ 56,890.11

DDA FUND

Northland Securities Inc.	Professional Services-Financial Planning	\$ 7,931.25
Total DDA FUND		\$ 7,931.25

Total		\$ 3,597,287.61
Payroll		\$ 893,293.10
Grand Total		\$ 4,490,580.71



To: Mayor Turnipseed and Town Council

From: Jessica Lake, Planner, Community Development

Date: September 10, 2024

Agenda Item: Resolution 57, Series 2024, A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Final Plat for 7 Hermit Condominiums Filing 4

REQUEST:

For Town Council to approve for the Final Plat for 7 Hermit Condominiums Filing 4, for Building C.

BACKGROUND:

In July 2022, Abrika Properties LLC received approval for a Major Development Permit to construct 76 multi-family dwelling units in 7 buildings in RMF-1 located at 91 Mount Hope Circle. This plat is to condominiumize 11 dwelling units and 6 garages in Building C.

ANALYSIS:

Per the Municipal Code, Condominium/Townhouse Final Plats are reviewed by staff and approved by Town Council, a public hearing is not required. Staff has reviewed this condo plat for Building D at 91 Mount Hope Circle; the review standards are as follows:

- A. The Town's surveying consultant shall compare the legal description of the subject property with the County records to ensure that:
 - i) The property described contains all contiguous single ownership;
 - ii) The lots and parcels have descriptions which both close and contain the area indicated; and
 - iii) The plat is correct in accordance with surveying and platting standards of the State.
- B. If no change is proposed in the potential for development beyond that existing or approved, division of property into condominium or townhouse units shall follow the procedures for Minor Subdivision in Section 4.17.100D.
- C. Developments that have an approved Development Plan or Preliminary Plat that is no more than three years old, and for which an intent to subdivide into townhouses or condominiums was declared during that review shall be reviewed pursuant to this Section.

The Town's surveying consultant, the Town Engineer and Planning staff have reviewed this application for the technical requirements and have provided detailed comments to the applicant. Staff will conduct an additional review to ensure that all comments have been incorporated into the plat prior to recordation.

A Development Agreement was approved by Council in July of 2022 and an intent to subdivide into condominiums was declared during that review. The rest of the buildings within this development will be condominiumized on separate plats as construction of each building nears completion.

COMMUNITY INPUT:

Notice was provided, according to Section 4.17.050 of the Land Use Code. Staff has not received any letters of public comment as of September 3, 2024.

BUDGET / STAFF IMPACT:

None.

STRATEGIC PLAN ALIGNMENT/STANDARDS ACHIEVED:

The final plat does not specifically align with any of the major objectives or goals in the Strategic Plan.

RECOMMENDED ACTION OR PROPOSED MOTION:

I move to **approve** Resolution 57, Series 2024, A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Final Plat for 7 Hermit Condominiums Filing 4.

ATTACHMENTS:

- Application & Narrative
- Draft Final Plat
- Resolution 57, Series 2024



TOWN OF EAGLE
COMMUNITY DEVELOPMENT
200 BROADWAY • PO BOX 609 • EAGLE, CO 81631
PHONE: 970-328-9655 • FAX: 970-328-9656
EMAIL: PLANNING@TOWNOFEAGLE.ORG
www.townofeagle.org

LAND USE & DEVELOPMENT APPLICATION

Pursuant to the Land Use & Development Code, Title 4

ZONING REVIEW	DEVELOPMENT REVIEW	SUBDIVISION REVIEW
☐ Special Use Permit	☐ Minor Development Permit	☐ Concept Plan
☐ Zoning Variance	☐ Major Development Permit	☐ Preliminary Plan
☐ Rezoning	PLANNED UNIT DEVELOPMENT (PUD) REVIEW	☐ Final Plat
☐ Temporary Use Permit	☐ PUD Zoning Plan	☐ Lot Line Adjustment
☐ Amendment to Zone District Regulations	☐ PUD Development Plan	☒ Condominium / Townhouse
☐ Encroachment Permit		☐ Minor Subdivision
☐ Wireless Communications Facility		

PROJECT NAME 7 Hermit Condos - Building C

PRESENT ZONE DISTRICT _____ **PROPOSED ZONE DISTRICT** _____
(if applicable)

LOCATION

STREET ADDRESS 91 Mt. Hope Circle

PROPERTY DESCRIPTION

SUBDIVISION Filing 1 **LOT(S)** _____ **BLOCK** RMF-1A
(attach legal description if not part of a subdivision)

DESCRIPTION OF APPLICATION/PURPOSE _____

APPLICANT NAME Michael Hood **PHONE** (970) 331-4492

ADDRESS P0 Box 9091, Avon, CO 81620 **EMAIL** michael@rangeconsultingllc.com

OWNER OF RECORD 7 Hermit Condos LLC **PHONE** (970) 331-4492

ADDRESS 8250 SW 27th Ave, Ocala, FL 34476 **EMAIL** Brandonhcohen@gmail.com

REPRESENTATIVE* _____ **PHONE** _____

ADDRESS _____ **EMAIL** _____

*A representative must submit an affidavit or power of attorney signed by the property owner of record authorizing the representation.

APPLICATION SUBMITTAL ITEMS:

The following submittal materials must be submitted in full before the application will be deemed complete (please check all items that are being submitted):

- ☒ Applicable fees and deposits.
- ☒ Project Narrative, describing the project, its compliance with any applicable review criteria, any impacts to the surrounding area, and any other relevant information.
- ☒ Surrounding and interested Property Ownership Report (see project specific checklist for more information).
- ☒ Proof of Ownership (ownership & encumbrance report) for subject property.
- ☒ Site Plan, drawn to scale and depicting the locations and boundaries of existing and proposed lots and structures.
- ☐ Project specific checklist.

FEES AND DEPOSITS:

See Eagle Municipal Code Section 4.03.080

1. Application fees shall be paid in full at the time of the filing of the application and unless paid, the application shall not be deemed complete. All fees are nonrefundable.
2. As described in Eagle Municipal Code § 4.03.080, third-party consultants may be necessary for the review and processing of applications. These costs ("pass-through costs") must be paid by the applicant. If pass-through costs are expected, the applicant must pay a deposit at the time the application is filed. If at any time the deposit does not fully cover the pass-through costs, the applicant must pay another subsequent deposit before the Town will continue processing the application.
3. The Town may withhold the recording of any Subdivision Final Plat or Development Plan or the signing of any Resolution or Ordinance until all pass-through fees are paid in full.
4. Within 30 days of approval or denial of an application, any remaining deposit shall be returned to the applicant. If an application is withdrawn, any remaining deposit shall be returned to the applicant within 60 days.

I have read the application form and certify that the information contained herein is correct and accurate to the best of my knowledge. I understand that it is my responsibility to provide the Town with accurate information related to this application. I UNDERSTAND THAT FILING AN APPLICATION IS NOT A GUARANTEE THAT THE APPLICATION WILL BE APPROVED.

Signature

8/5/2024

Date

FOR OFFICE USE ONLY

DATE RECEIVED _____ BY _____ FILE NUMBER _____
REVIEW FEE _____ DATE PAID _____ RECEIVED BY _____
DATE CERTIFIED COMPLETE _____ BY _____
P&Z HEARING DATE _____ DECISION _____
TC HEARING DATE _____ DECISION _____



Building C Platting Application for
Haymeadow Parcels RMF-1A
Application Narrative
August 5 2024

7 Hermit Condos, LLC
8250 Southwest 27th Avenue
Ocala FL 34476

Haymeadow Project Team

Property Owner:

7 Hermit Condos, LLC
8250 Southwest 27th Avenue
Ocala Fl 34476

Owner's Contact

Michael Hood
Range Consulting
PO Box 909
Avon, CO 81620

Land Use Attorney:

Wear Travers Perkins LLC
97 Main Street Suite E 202
Edwards CO 81632

Surveyor:

SGM
18 W. Sixth Street, Suite 200
Glenwood Springs, CO 81601

Background

The RMF-1 Major Development Permit was approved by Town of Eagle on July 12, 2022. The approval included 76 units for development. In the approval the Developer committed to 9 LERP units and 11 Resident Occupied Units in all of RMF-1. The final plat conforms with the Filing 1 Preliminary plan by maintaining the access points defined in Filing 1 preliminary plan. It is also in conformance with no deviations from the major development permit for RMF-1 (DR22-01). The Developer acknowledges that the development complies with all applicable technical standards and specifications.

RMF-1

Now known as 7 Hermit Condos, Parcel RMF-1A is addressed as 91 Mt. Hope Circle. The parcel is designated as multi-family by the PUD Guide and Haymeadow Filing 1 Final Plat. The 7 Hermit Condos includes seventy-six dwelling units in seven buildings. All seventy-six units are for sale, which satisfies condition of approval #13 in ordinance 13-2021.

The Development is in full compliance with the PUD Guide development standards. No design variances were requested. Parking is in compliance with town requirements and includes enclosed individual garages and surface parking spaces. The Alpine Engineering site plan includes a full parking compliance summary. The plan is in full compliance with all of the requirements in Land Use Development Code, such as parking spaces, impervious surfaces, lot coverages, density per acre, LERP units, signage, landscaping and irrigation. While this is only the first building, when completed this property will be in excess of the LERP and RO units committed to with the Major Development Permit application, this commitment was 9 LERP units and 11 RO Units. There will be three (3) LERP units in Building C C101, C102, C103 and one RO Unit C304. This brings the total so far to: 9 LERPs and 8 RO units.

Construction Drawings and Specifications

The construction drawings and specifications are on file with the Town of Eagle Building Department, please reference:

Building A: 22TEGL-5796
Building B: 22TEGL-5797
Building C: 22TEGL-5798
Building D: 22TEGL-5799
Building E: 22TEGL-5800
Building F: 22TEGL-5801
Building G: 22TEGL-5802

Final Reports and Studies

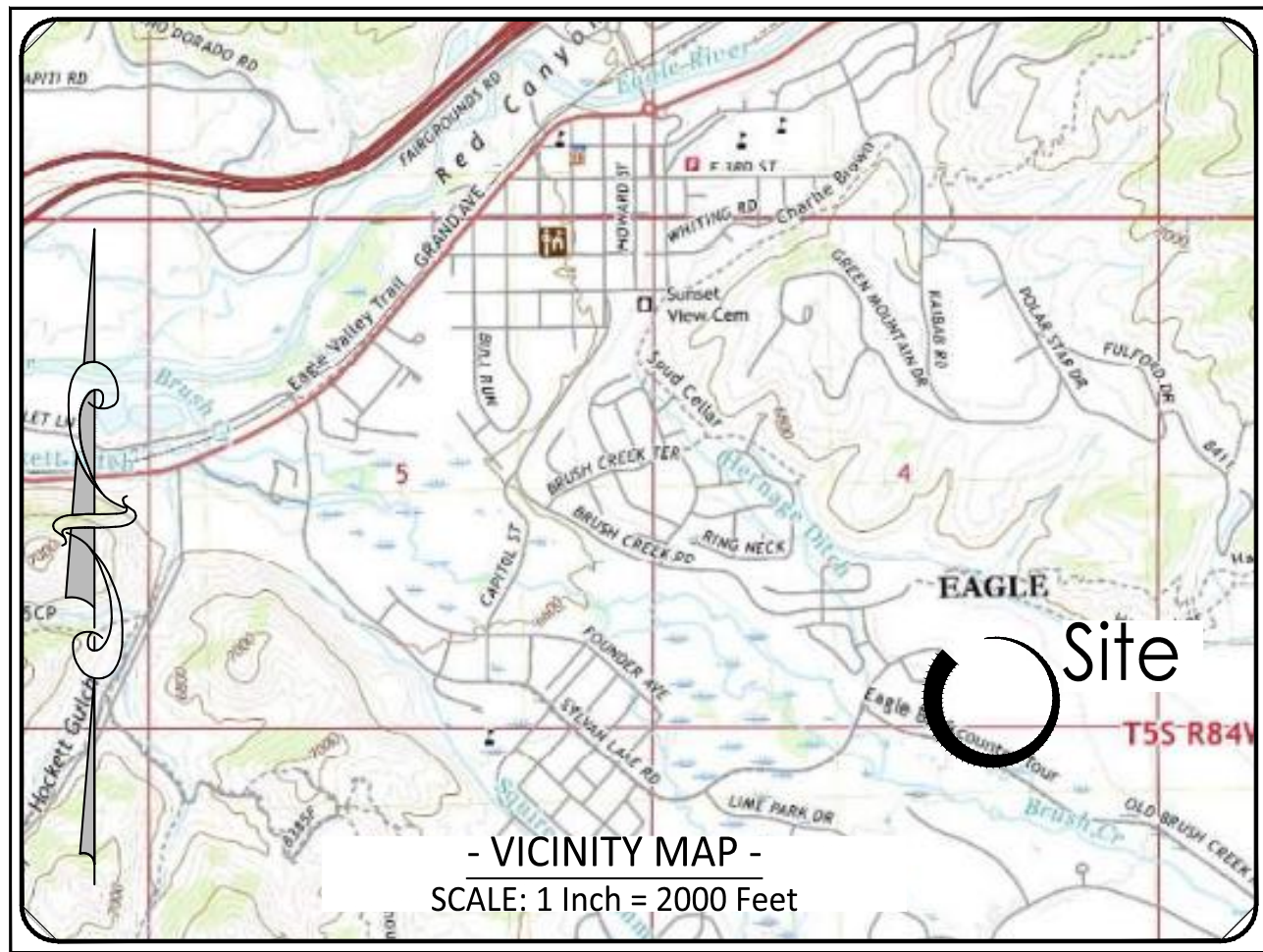
The Haymeadow PUD approval addressed all the traffic studies, utility impact reports, drainage plans, and the soils reports were submitted with the Major Development Permit for this parcel. This project is in compliance with all of the previous approvals.

Haymeadow Filing 1 included installation of all necessary public utilities to serve the property and make it development ready. All utilities have been completed and accepted by the Town of Eagle with RMF-1 under a grading permit. The access has been completed per the construction drawings. The access drives, parking areas and building layouts have been designed to meet the requirements of the Greater Eagle Fire Protection District and the standards of TOE Code Section 4.07.150. The building plans show the appropriate fire control systems.

Schedule and Phasing

In Ordinance 13-2021, there was a condition of approval #11 stated that Haymeadow to start construction on 72 units within 36 months of the approval. The developer has met the criteria in Ordinance 13-2021 by starting the construction of 76 units within 16 months of the approval.

The buildings are being phased for turnover and there will be a condo map application for each building.



CERTIFICATE OF DEDICATION AND OWNERSHIP

Know all men by these presents that 7 Hermit Condos, LLC, a Colorado Limited Liability Company, the undersigned, being sole owner(s) in fee simple of all that real property described as follows:

Tract RMF-1A, as depicted on the Fourth Amendment, Haymeadow Filing 1, Easements of Tracts RMF-1A and RMF-2A in the County of Eagle, as recorded at Reception No. 202407591 Town of Eagle, County of Eagle, State of Colorado,

containing 5.084 Acres (221,469 square feet), more or less. Have by these presents laid out, platted and subdivided the same into lots and tracts as shown on this final plat and condominium map under the name and style of 7 Hermits Condominiums - 3rd Supplement to Filing 1 in the County of Eagle; and do hereby accept the responsibility for the completion of all required public improvements and places as shown on the accompanying plat to the use of the public forever, and do hereby dedicate those portions of said real property which are created as easements on the accompanying plat to the public forever as easements for the purposes shown for the Subdivision, and further, hereby grant the right to install and maintain all necessary structures to the entity responsible for providing the services for which the easements are established.

Executed this _____ day of _____, 2024.

Owner: 7 Hermit Condos, LLC, a Colorado Limited Liability Company

By: _____

Name: _____

8250 Southwest 27th Avenue
Ocala, FL 34476

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing Certificate of Dedication and Ownership was acknowledged before me this _____ day of _____, 2024,
by _____
as _____
of: 7 Hermit Condos, LLC, a Colorado Limited Liability Company

Witness my hand and official seal _____

My commission expires: _____
Notary Public

MORTGAGEE OR LIENHOLDERS CERTIFICATE

Alpine Bank, a Colorado Banking Corporation, beneficiary under that certain Deed of Trust dated May 18, 2023 and recorded May 19, 2023 as Reception No. 202305385 in the Office of the Clerk and Recorder of Eagle County, Colorado, as amended and supplemented from time to time, for itself, its successors and assigns, hereby approves, joins, and consents to the dedications made in this plat affecting the property encumbered by the Deed of Trust.

ALPINE BANK,
a Colorado banking corporation

By: _____

Name: _____

Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, as _____ of
ALPINE BANK, a Colorado banking corporation.

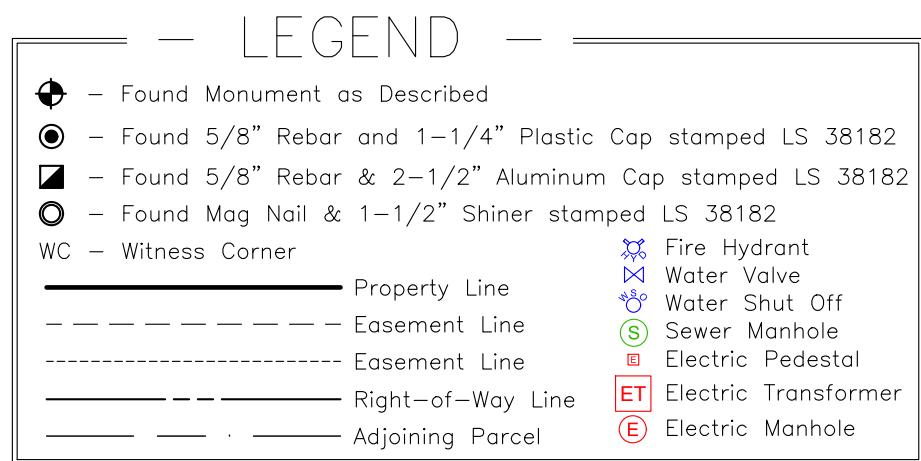
WITNESS my hand and official seal.
My commission expires: _____

[SEAL]

NOTARY PUBLIC

OWNER'S ADDRESS

7 Hermit Condos, LLC
8250 Southwest 27th Avenue
Ocala, FL 34476



Found Survey Monument
(Corner 2 of Tract 38)
2-1/2" USGLD BRASS CAP
on a 1" iron Pipe, Stamped TR38
Cor2 S4 1917

Found Survey Monument
Corner 1 of Tract 38
2-1/2" Alum. Cap
on a 3/4" rebar, Stamped
TR38 40 41 LS 23089

Basis of Bearings
N89°57'47"E 2819.44'

S50°13'35"E 1372.50' (1m)

20' Drainage Easement
Reception No. 201907561

10' Metro District Drainage Easement
Reception No. 201907561

20' Non-Potable Water Easement
Reception No. 201907561

10.0' Utility Easement
Reception No. 202402047

10' General Utility Easement
Reception No. 201907561

10' Metro District Drainage Easement
Reception No. 201907561

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10' Metro District Drainage Easement
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20' Non-Potable Water Easement
Reception No. 201907561

10.0' Utility Easement
Reception No. 202407591

10' General Utility Easement
Reception No. 201907561

20' Non-Potable Water Easement
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Reception No. 201907561

10' Metro District Drainage Easement
Reception No. 201907561

Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
A Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9,
Township 5 South, Range 84 West of the Sixth P.M.
Town of Eagle, Eagle County, Colorado

Land Use Table			
Unit	Address	SF	Use
Unit C101	91 Mount Hope Circle, Unit D101, Eagle, CO 81631	765	Condominium Unit
Unit C102	91 Mount Hope Circle, Unit D102, Eagle, CO 81631	537	Condominium Unit
Unit C103	91 Mount Hope Circle, Unit D102, Eagle, CO 81631	664	Condominium Unit
Unit C201	91 Mount Hope Circle, Unit D201, Eagle, CO 81631	892	Condominium Unit
Unit C202	91 Mount Hope Circle, Unit D202, Eagle, CO 81631	892	Condominium Unit
Unit C203	91 Mount Hope Circle, Unit D203, Eagle, CO 81631	1,030	Condominium Unit
Unit C204	91 Mount Hope Circle, Unit D204, Eagle, CO 81631	1,030	Condominium Unit
Unit C301	91 Mount Hope Circle, Unit D301, Eagle, CO 81631	892	Condominium Unit
Unit C302	91 Mount Hope Circle, Unit D302, Eagle, CO 81631	892	Condominium Unit
Unit C303	91 Mount Hope Circle, Unit D303, Eagle, CO 81631	1,030	Condominium Unit
Unit C304	91 Mount Hope Circle, Unit D304, Eagle, CO 81631	1,029	Condominium Unit

TOWN COUNCIL CERTIFICATE

This map of 7 Hermits Condominiums - 3rd Supplement to Filing 1, is approved by Town Council of the Town of Eagle, Colorado, this _____ day of _____, 2024, for filing with the Clerk and Recorder of Eagle County, Colorado, and for conveyance or dedication to the Town of Eagle the public dedications shown hereon; subject to the provisions that approval in no way obligates the Town of Eagle for financing or constructing of improvements on said lands, streets or easements dedicated to the public except as specifically agreed to by the Town Council of the Town of Eagle. Further, said approval in no way obligates the Town of Eagle for maintenance of public improvements until construction of said improvements has been completed in accordance with the Town of Eagle's specifications and the Town of Eagle has agreed to accept said improvements. This approval does not guarantee that the size, soil conditions, sub-surface geology, ground water conditions, or flooding conditions of any lot shown hereon are such that a building permit, development permit, or any other required permit will be issued. This approval is with the understanding that all expenses involving required improvements for all utility services, paving, grading, landscaping, curbs, gutters, sidewalks, road lighting, road signs, flood protection devices, drainage structures, and all other improvements that may be required shall be the responsibility of the owners designated hereon and not the Town of Eagle, unless otherwise specifically agreed to in writing by the Town Council.

TOWN OF EAGLE, COLORADO

By: _____
Scott Turnipseed, Mayor

Witness my hand and seal of the Town of Eagle, Colorado

ATTEST: _____
Jenny Rakow, Town Clerk

CERTIFICATE OF TAXES PAID

I, the undersigned, do hereby certify that the entire amount of taxes and assessments due and payable as of _____

_____ upon all parcels of real estate described on this map of 7 Hermits Condominiums - 3rd Supplement to Filing 1, are paid in full.

Dated this _____ day of _____, A.D. 2024.

Treasurer of Eagle County, Colorado

EAGLE COUNTY CLERK AND RECORDER CERTIFICATE

This map of 7 Hermits Condominiums - 3rd Supplement to Filing 1, was filed for record in the office of the Eagle County Clerk

and Recorder at _____ o'clock _____ M. on the _____ day of _____, 2024, and is duly recorded at

Reception No. _____

EAGLE COUNTY CLERK & RECORDER

By: _____
Deputy

Declarations or Protective Covenants are filed in Book _____ at Page _____ as Document No. _____

TITLE CERTIFICATE

_____ does hereby certify that it has examined the title to all lands shown on this map of 7 Hermits Condominiums - 3rd Supplement to Filing 1 in the County of Eagle, State of Colorado, and that title to such lands is vested in 7 Hermit Condos LLC is free and clear of all liens, and encumbrances, except as follows:

Executed this _____ day of _____, 2024.

By: _____
Title Examiner

Closure Report - Tract RMF-1A

Perimeter: 1981.083' Area: 221468.98 Sq. Ft.

Error Closure: 0.001 Course: S88°57'06"E

Error North: -0.0000 East: 0.0011

Precision 1: 1979731.000

CURVE TABLE

CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	17.05'	82.00'	11°54'44"	S59°16'41"E	17.02'
C2	141.98'	300.00'	27°06'59"	S24°27'21"W	140.66'

NOTES:

1. The purpose of this Final Plat and Condominium Map of 7 Hermits Condominiums - 3rd Supplement to Filing 1 is to establish the condominium property boundaries, Expansion Property, Units, Limited Common Elements and General Common Elements that are within the Property as those terms are defined in the Declaration.

2. Basis of Bearings: Bearings shown hereon are based on an assumed bearing of N89°57'47"E the line between Corner 2 of Tract 38 a 2 1/2" USGLD Brass Cap on a 1" diameter iron pipe and Corner 1 of said Tract 38 a 2 1/2" Aluminum Cap on a 3/4" rebar as shown hereon with the northwest corner of RMF-2A bearing S50°13'35"E a distance of 1372.50 feet from said Corner 2 of Tract 38.

3. Survey date: February, March, April, May, June 2024.

4. Units of linear measurements are displayed in US Survey Feet.

5. Vertical Information:
Datum: Elevation information shown hereon is based upon GPS observations utilizing OPUS, Geoid 12B to derive the NGVD29 elevation of 6714.13' at the top of a 5/8" rebar & 1-1/4" orange plastic cap stamped LS 38182, as shown on Sheet 2.

6. The property shown hereon is subject to all easements, rights-of-way, building setbacks or other restrictions of record, as such items may affect this property. Plottable matters are shown hereon. This survey does not represent a title search by this surveyor to determine ownership or to discover easements or other encumbrances of record. All information pertaining to ownership, easements and other encumbrances of record has been taken from the Haymeadow Filing 1, Second Amendment, Reception Number 202214557; those depicted in the Correction to Haymeadow Filing 1, Second Amendment, Reception No. 202301503; those depicted in the Fourth Amendment, Haymeadow Filing 1, Easements of Tracts RMF-1A and RMF-2A, Reception No. 202407591; as well as the Schedule B Part 2 Exceptions recited on Title Commitment No ABC50070833-6 provided by Land Title Guarantee Company having a date of 07/12/2024. All easements of record as set forth in Schedule B, Part II of the aforementioned title commitment are shown in this Plat except for the easements created by the instruments contained in the following listed Schedule B, Part II exceptions, which easements are not plottable based upon the legal descriptions set forth in the instruments creating such easements:

a. Exception 40: EASEMENTS AS SET FORTH AND GRANTED IN GRANT OF EASEMENT RECORDED FEBRUARY 23, 2023 UNDER RECEPTION NO. 202302187.
b. Exception 45: HOLY CROSS ENERGY UNDERGROUND RIGHT-OF-WAY EASEMENT RECORDED MARCH 18, 2024 UNDER RECEPTION NO. 202402838.

7. Flood Zone Classification; Flood Hazard Zone information: Zone X according to FIRM Map Number 08037C0393D with an effective date of December 4, 2007.

8. All Tracts located within this map of 7 Hermits Condominiums - 3rd Supplement to Filing 1, are subject to the Town of Eagle, Colorado Resolution No. 7 (series of 2021) recorded at Reception No. 202114804, the Town of Eagle, Colorado Resolution No. 12 (series of 2021) recorded at Reception No. 2021011274 and the First Amended PUD Guide for the Haymeadow Planned Unit Development recorded at Reception No. 202114805.

9. Abbreviations: Aluminum = Alum.; Angle Point = AP; Center line = CL; Diameter= dia.; Land Surveyor = LS; Limited Common Element = LCE; General Common Element = GCE; Metropolitan = Metro; Mechanical = Mech; Public Land Survey System = PLSS; Principal Meridian = P.M.; Reception Number = Reception No. or Rec.No. or Rec.; Right of Way = ROW; Tract = TR; Utility Easement = EU; United States Government Land Office = USGLO; Square Feet = S.F.; Garage Building = GB; Storage Building D = SD; Parking = P

10. The property and improvements shown on this Condominium Map are subject to that certain Condominium Declaration for 7 Hermits Condominiums recorded July 10, 2024 at Reception No. 202407594, Eagle County, Colorado (as amended and supplemented from time to time, the "Declaration"). Capitalized terms used in this Condominium Map without further specific definition have the meanings given to them in the Declaration.

11. This Condominium Map and the Declaration may be supplemented and expanded by the addition of any portion of the Expansion Property as depicted hereon and as defined in the Declaration pursuant to rights reserved in the Declaration.

12. Parcel dimensions shown hereon reflect both record and measured bearings and distances.

SURVEYOR'S CERTIFICATE

I, Joshua L. Wilson, do hereby certify that I am a Professional Land Surveyor licensed to practice land surveying under the laws of the State of Colorado, that this condominium map is a true, correct and complete map of 7 Hermits Condominiums - 3rd Supplement to Filing 1, as laid out, dedicated and shown hereon, that such map was made from an accurate survey of said property by me and under my supervision and accurately shows the location and dimensions of the lots, easements and rights of

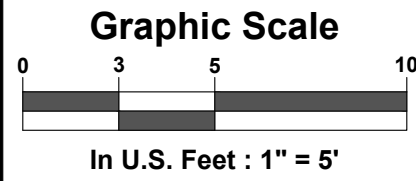
**Final Plat and Condominium Map of
77 Hermits Condominiums
3rd Supplement to Filing 1
Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9
Township 5 South, Range 84 West, 6th P.M.
Town of Eagle, Eagle County, Colorado**

Building Dimensional Ties

Page 24 of 498



Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
A Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9,
Township 5 South, Range 84 West of the Sixth P.M.
Town of Eagle, Eagle County, Colorado



SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004
www.sgm-inc.com

Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9
Township 5 South, Range 84 West 6th P.M.
Town of Eagle, Eagle County, Colorado

Revision	Date	By
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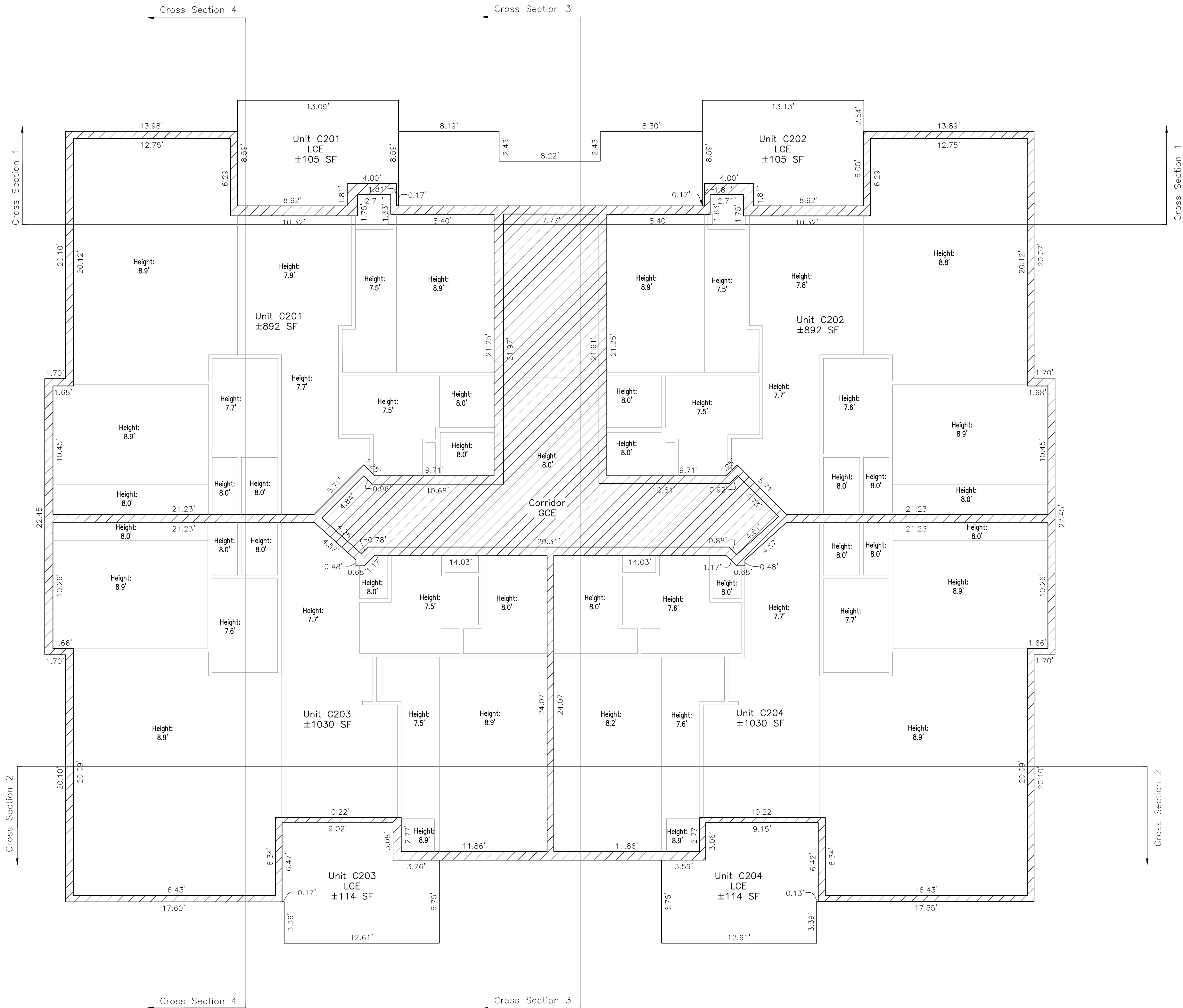
Job No. 2016-277-001
Drawn by: JLW
Date: 08/02/2024
Approved: PLS: JLW
File: 7-HermitsCondo-BldgC Pages 3-6
Location:

Building C
Level 1
Interior Plan View

Sheet No.
3
Of: 6

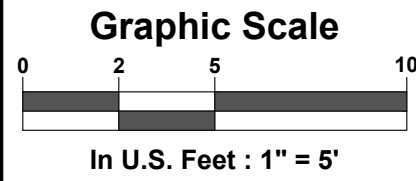


Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
A Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9,
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— LEGEND —

LCE — Limited Common Element
GCE — General Common Element
— GCE



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Town of Eagle, Eagle County, Colorado

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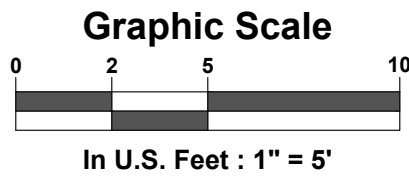
Job No. 2016-277-001
Drawn by: JLW
Date: 08/02/2024
Approved: J PLS: JLW
File: 7-HermitsCondo-BldgC Pages 3-6
Location:

Building C
Level 2
Interior Plan View

Sheet No. 4
Of: 6

REVIEW COPY

Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
A Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Sited in Tracts 38 and 55 of Sections 4 and 9,
Township 5 South, Range 84 West of the Sixth P.M.
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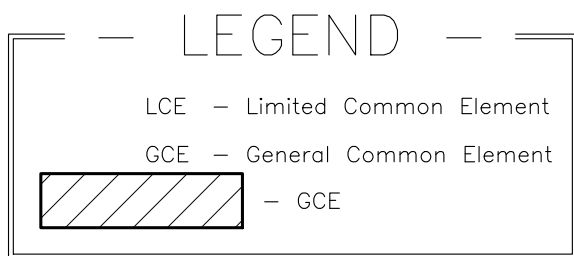
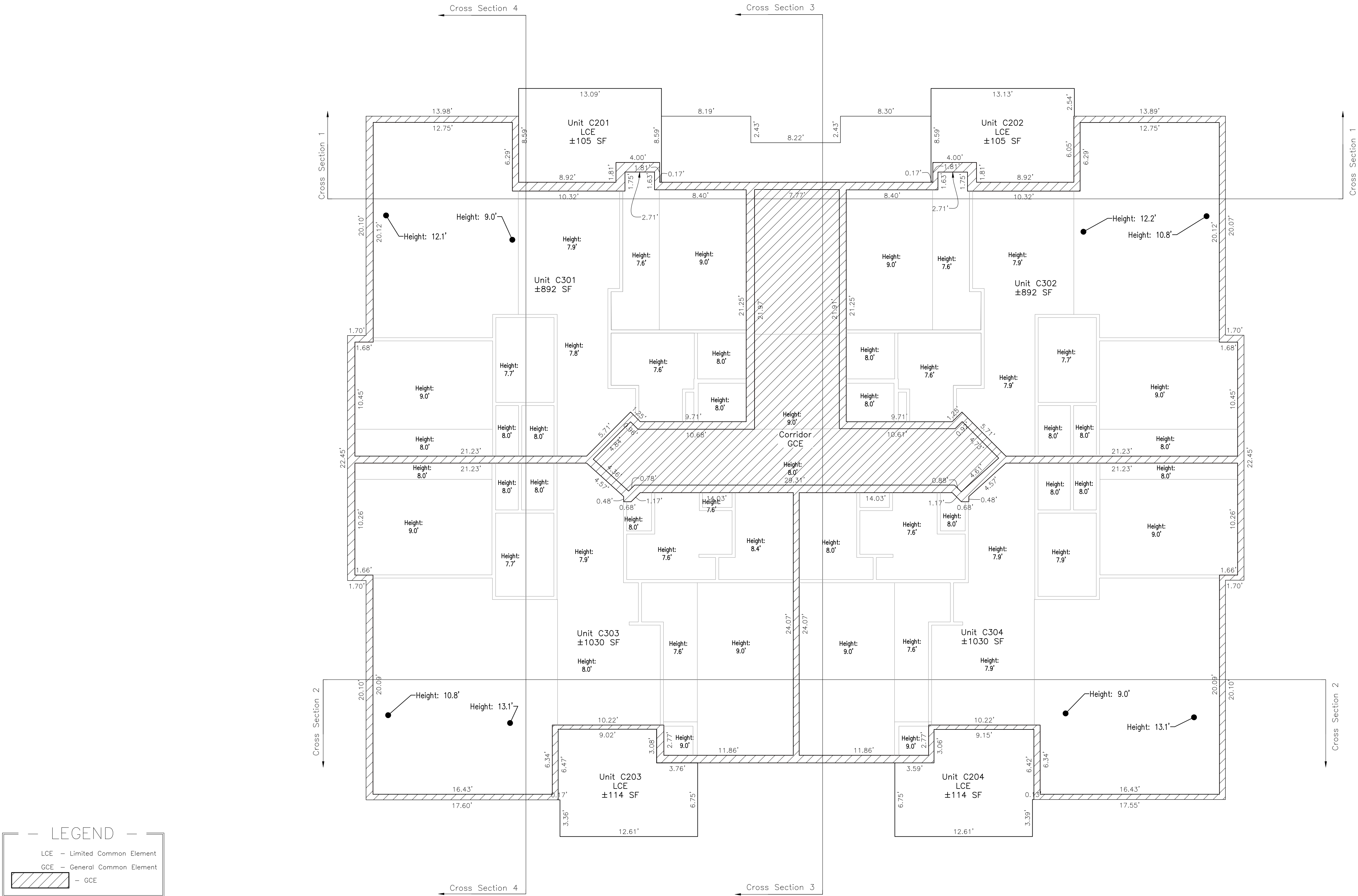
Final Plat and Condominium Map of
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3rd Supplement to Filing 1
Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Sited in Tracts 38 and 55 of Sections 4 and 9
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Town of Eagle, Eagle County, Colorado

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Job No. 2016-277-001
Drawn by: JLW
Date: 08/02/2024
Approved: PLS: JLW
File: 7-HermitsCondo-BldgC Pages 3-6
Location:

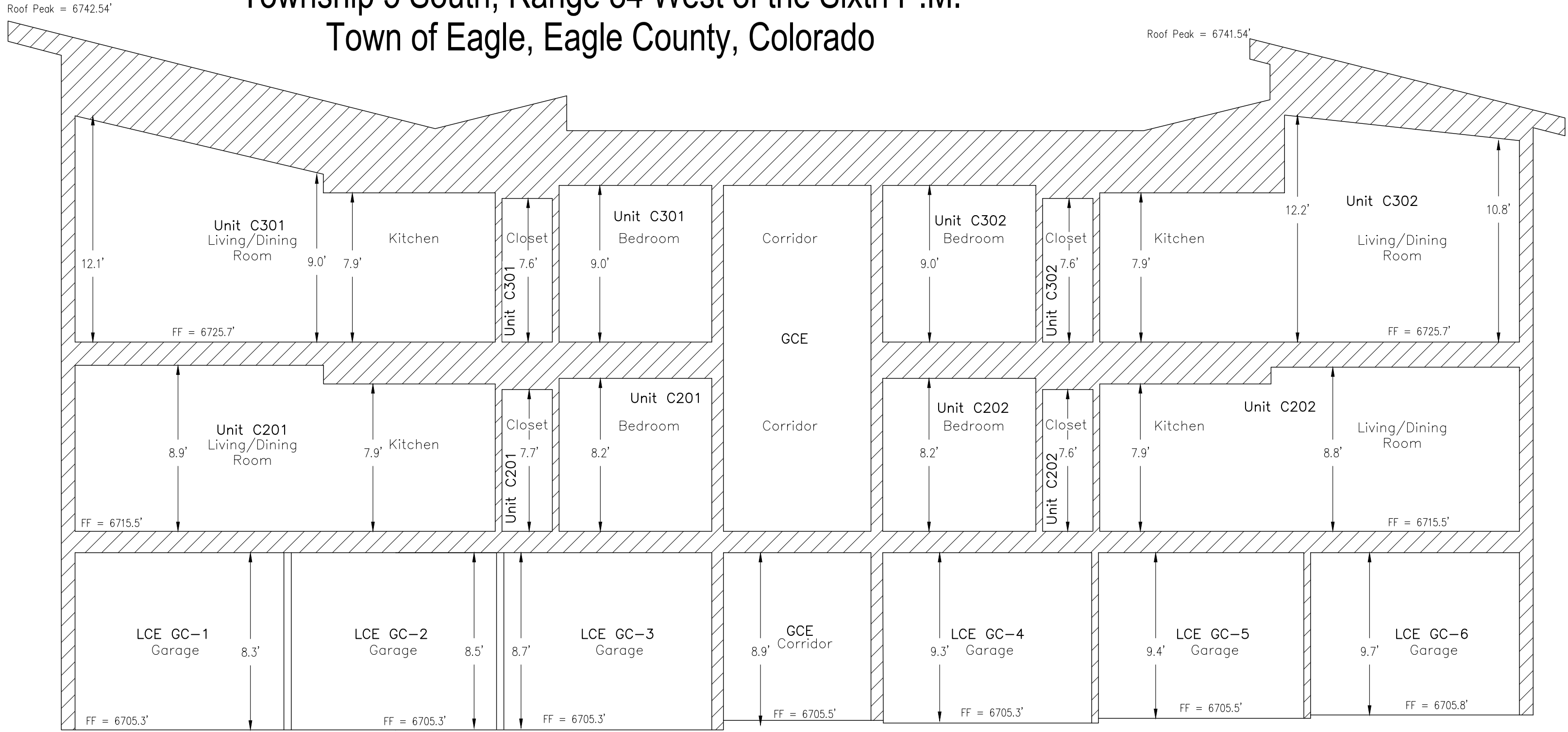
Building C
Level 3
Interior Plan View

Sheet No. 5
Of: 6

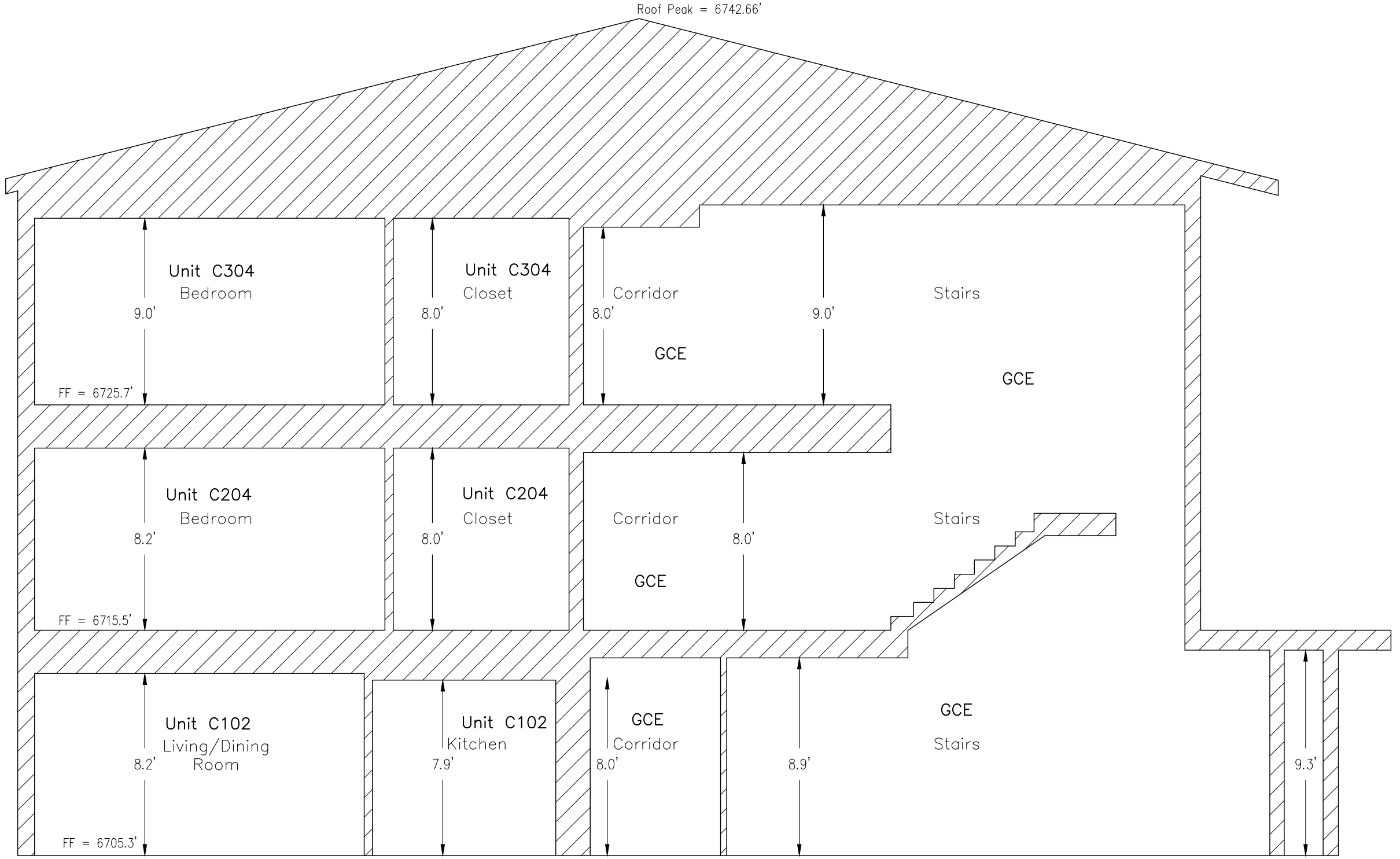


REVIEW COPY

Final Plat and Condominium Map of
7 Hermits Condominiums
3rd Supplement to Filing 1
A Re-subdivision of Tract RMF-1A
Haymeadows Filing 1, 4th Amendment
Situated in Tracts 38 and 55 of Sections 4 and 9,
Township 5 South, Range 84 West of the Sixth P.M.
Town of Eagle, Eagle County, Colorado



Building C
Cross Section 1



Building C
Cross Section 3

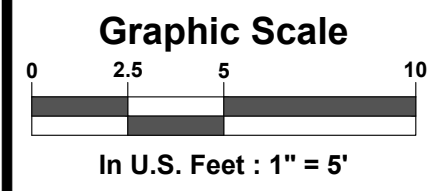
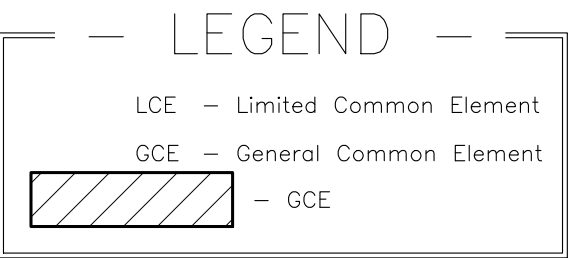


Building C
Cross Section 2



Building C
Cross Section 4

FF – Finished Floor Elevation



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Final Plat and Condominium Map of
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Town of Eagle, Eagle County, Colorado

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Job No. 2016-277-009
Drawn by: MEW
Date: 08/02/2024
Approved: JLS
File: 7-HermitsCondo-BldgC Pages 3-6
Location:

Building C
Cross Sections

Sheet No. 6

Of: 6

REVIEW COPY

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 57
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A FINAL PLAT FOR 7 HERMIT CONDOMINIUMS FILING 4

WHEREAS, 7 Hermit Condos, LLC ("Applicant") owns the real property described as Tract RMF-1A as depicted on the Haymeadow Filing 1, Fourth Amendment, A Lot Line Adjustment of Tracts RMF-1A and RMF-2A, situated in Tracts 38 and 55 of Sections 4 and 9 in the Town of Eagle, Colorado (the "Property"); and

WHEREAS, Applicant filed an application for approval of the 7 Hermit Condominiums Filing 2 Final Plat, to condominiumize 11 dwelling units and 6 garages in Building C on Tract RMF-1A of the Property (the "Application").

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AS FOLLOWS:

Section 1. Findings. The Town Council finds that the Application complies with the applicable criteria in Section 4.17.100.F. of the Eagle Municipal Code.

Section 2. Decision. Based on the foregoing findings, the Town Council approves the Application, subject to the following conditions: Within 30 days of the date of Town Council's Resolution, and prior to recordation of the Final Plat, Owner shall make technical corrections to the Application documents as directed by Town staff. The Town Planner may grant one administrative extension of this deadline of up to 30 days, upon good cause shown. Any further extensions must be authorized by the Town Council.

INTRODUCED, READ, PASSED AND ADOPTED ON SEPTEMBER 10, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk



To: Mayor and Town Council

From: Jessica Lake, Sr. Planner, Community Development

Date: September 10, 2024

Agenda Item: Resolution 58, Series 2024, A Resolution of the Town Council of the Town of Eagle, Colorado
Approving the First Amendment to the Development Agreement for 263 Sawatch Road

REQUEST:

For Town Council to review and approve an Amendment to the Development Agreement for 263 Sawatch Road.

BACKGROUND:

On December 12, 2023, Town Council approved a Major Development Permit and a Development Agreement (DA) at 263 Sawatch Road to construct three buildings, each with three first floor commercial units and three second floor residential units accessory to a non-residential use. The owners of 263 Sawatch Road have requested an amendment to the Development Agreement to change the date public improvements must be completed by.

ANALYSIS:

In their August 8 letter, the property owners note that they don't currently have their building permits for this project, and it would be a significant challenge to have all the public improvements completed by the November 30, 2024 date currently in the DA. Staff propose moving this date to November 30, 2025 to support the property owners' request while maintaining the intent of the DA.

COMMUNITY INPUT:

No community input was solicited.

BUDGET / STAFF IMPACT:

None.

STRATEGIC PLAN ALIGNMENT/STANDARDS ACHIEVED:

The amendment to the development agreement does not specifically align with any of the major objectives or goals in the Strategic Plan.

RECOMMENDED ACTION OR PROPOSED MOTION:

I move to **approve** Resolution 58, Series 2024, A Resolution of the Town Council of the Town of Eagle, Colorado Approving the First Amendment to the Development Agreement for 263 Sawatch Road.

ATTACHMENTS:

- Letter from Property Owners
- Amended Development Agreement
- Resolution 58, Series 2024

SAWATCH 263 RD, LLC

August 8, 2024

Town of Eagle
200 Broadway
PO Box 609
Eagle, CO 81631

Eagle Town Board:

I, Rick Patriacca a member of “Sawatch 263 RD LLC”, am requesting an amendment to the Development Agreement for 263 Sawatch Road, Eagle CO. We will be getting a much later start on our project than any of us have anticipated. Therefore, we would like to ask for a time extension to August 2025 for the public improvements to be completed. Per the Development Agreement, we are required to have all public improvements completed by 11/30/2024. We are still trying to get our permit completed and then will start the funding process. Four months to complete all of this will be a major challenge.

Thank you for taking this into consideration.

Rick Patriacca
Member
Sawatch 263 Rd, LLC
(970) 390-3225

PO BOX 2322 * AVON, CO 81620 * (970) 390-3225

FIRST AMENDMENT TO DEVELOPMENT AGREEMENT

This FIRST AMENDMENT TO DEVELOPMENT AGREEMENT (the "First Amendment") is entered into as of _____, 2024 (the "Effective Date"), by and between the Town of Eagle, a Colorado home rule municipality with an address of P.O. Box 609, Eagle, CO 81631 (the "Town"), and Sawatch 263 Rd LLC, a limited liability company with an address of PO Box 2322, Avon, CO 81620 ("Developer") (each a "Party" and collectively the "Parties").

WHEREAS, on December 12, 2023, the Town Council adopted a resolution approving a Major Development Permit and associated Development Agreement for 263 Sawatch Road (the "DA");

WHEREAS, the DA was recorded on December 18, 2013, at Reception No. 202316677;

WHEREAS, on August 8, 2024, Developer requested an amendment to the Development Agreement to extend the timeframe for completing public improvements; and

WHEREAS, the Parties wish to amend the DA.

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Section 2.6.a. of the DA is hereby deleted in its entirety and replaced with the following:

The Public Improvements shall be completed on or before November 30, 2025.

2. All other provisions of the DA shall remain in full force and effect.

IN WITNESS WHEREOF, the Parties have executed this First Amendment as of the Effective Date.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

Sawatch 263 Rd LLC, a limited liability company

By: _____

STATE OF COLORADO)
) ss.
COUNTY OF EAGLE)

Subscribed and sworn to before me this _____ day of _____, 2024, by
_____ as _____ of Sawatch 263 Rd LLC.

WITNESS MY HAND AND OFFICIAL SEAL.

My commission expires:

Notary Public

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 58
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING THE FIRST AMENDMENT TO THE DEVELOPMENT AGREEMENT FOR
263 SAWATCH ROAD

WHEREAS, on December 12, 2023, the Town and 263 Sawatch Rd LLC (the "Developer") entered into a Development Agreement, which was recorded with the Eagle County Clerk and Recorder on December 18, 2023 at Reception No. 202316677; and

WHEREAS, the Town and the Developer wish to amend the Development Agreement to extend certain deadlines therein.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO, AS FOLLOWS:

Section 1. The Town Council hereby approves the First Amended Development Agreement is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the First Amended Development Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON SEPTEMBER 10, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk



To: Mayor Turnipseed and Town Council
From: Peyton Heitzman, Community Development Director
Date: September 10, 2024
Agenda Item: Resolution 59, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Reimbursement Agreement with Red Mountain Ranch LLLP"

REQUEST:

For Town Council to countersign the Reimbursement Agreement for the Eagle Meadows annexation application.

BACKGROUND:

The agreement ensures the Town recoups costs incurred from processing the annexation application. Merv Lapin, Managing Partner of Red Mountain Ranch LLLP, has already signed the Reimbursement Agreement.

ANALYSIS:

Not applicable.

COMMUNITY INPUT:

Not applicable.

BUDGET / STAFF IMPACT:

There is no impact on the budget. Per the Reimbursement Agreement, the applicant is required to reimburse the Town with costs associated with processing the annexation application.

STRATEGIC PLAN ALIGNMENT / STANDARDS ACHIEVED:

Not applicable.

RECOMMENDED ACTION:

Motion to **approve** Resolution 59, Series 2024, "A Resolution of the Town Council of the Town of Eagle, Colorado Approving a Reimbursement Agreement with Red Mountain Ranch LLLP"

ATTACHMENTS:

- Reimbursement Agreement
- Resolution 59, Series 2024

REIMBURSEMENT AGREEMENT

THIS REIMBURSEMENT AGREEMENT ("Agreement") is entered into on this 9 day of August, 2024 (the "Effective Date") by and between the Town of Eagle, a Colorado municipality with an address of 200 Broadway, Eagle, CO 81631 (the "Town"), and Red Mountain Ranch LLLP, a Colorado limited liability limited partnership, with an address of 232 West Meadow Drive, Vail, CO 81657 (the "Developer") (each a "Party" and collectively the "Parties").

WHEREAS, the Developer is the owner of real property in unincorporated Eagle County more particularly described on **Exhibit A**, attached hereto and incorporated herein by this reference (the "Property");

WHEREAS, the Developer plans to submit to the Town an application to annex the Property into the Town (the "Application");

WHEREAS, the Parties acknowledge that the land use fees imposed by Section 4.17.030(E) of the Eagle Municipal Code (the "Code") do not adequately cover the Town's expenses incurred during the annexation application process and that the Town will continue to incur expenses until final approval of the Application; and

WHEREAS, the Developer wishes to reimburse the Town for its additional expenses incurred in processing the Application pursuant to the terms of this Agreement.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein and other good and sufficient consideration, the Parties agree as follows:

1. Application Process. The Application will be processed by the Town pursuant to the applicable provisions of the Code and other applicable law.

2. Reimbursement.

a. *Deposit*. The Parties hereby acknowledge and agree that review of the Application may require the Town to incur certain necessary costs, defined as "Pass Through Fees" in Section 4.17.030.E.2 of the Code, including without limitation costs for third-party consultants engaged by the Town, the Town Attorney, the Town's water counsel and engineer, and staff time for planning, engineering, and public works. Upon execution of this Agreement, the Developer agrees to deposit the sum of \$6,800 as a deposit (the "Deposit") for Pass Through Fees related to reviewing and processing the Application.

b. *Costs Exceeding Deposit*. If the Town incurs any costs exceeding the Deposit, the Developer shall pay such additional costs or make a subsequent deposit. All invoiced Pass Through Fees shall be paid in full to the Town within 30 days of the date of the invoice. Failure by the Developer to pay any invoice within the specified time shall be cause for the Town to refrain from approving the Application until the Pass Through Fees are paid in full. If the Pass Through Fees are not paid when due, the past due amounts shall be a lien on the Property, and the Town Treasurer may certify the amount of the same to the County Treasurer to be placed on

the tax list for the current year and to be collected in the same manner as other taxes are collected.

d. *Excess Deposit.* Any remaining Deposit shall be returned to the Developer within 30 days after final approval of the Application.

4. Miscellaneous.

a. *Governing Law and Venue.* This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Eagle County, Colorado.

b. *No Waiver.* Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

c. *Integration.* This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

d. *Third Parties.* There are no intended third-party beneficiaries to this Agreement.

e. *Notice.* Any notice under this Agreement shall be in writing and shall be deemed sufficient when directly presented or sent prepaid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability.* If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification.* This Agreement may only be modified upon written agreement of the Parties.

h. *Assignment.* Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

i. *Governmental Immunity.* The Parties and their respective officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Parties and their respective officers, attorneys or employees.

j. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligations of either Party not performed during the current fiscal year are subject to annual appropriation, and thus any obligations of either Party hereunder shall extend only to monies currently appropriated and shall not constitute a mandatory charge, requirement or liability beyond the current fiscal year.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

RED MOUNTAIN RANCH PARTNERSHIP

Mervyn Lapin, Managing Partner

STATE OF COLORADO)

COUNTY OF Eagle) ss.

Subscribed and sworn to before me this 9th day of August, 2024 by
Mervyn Lapin, Managing Partner of Red Mountain Ranch Partnership, LLP.

My Commission expires:

5-17-2027

Notary Public

**SARA ANN NEWSAM
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20234018556
MY COMMISSION EXPIRES 05/17/2027**

EXHIBIT A
Legal Description of Property

Parcel A

Tax Area SC016 - EAGLE (AREA) - SC016

Parcel Number 1939-273-00-040 Legal Summary Subdivision: RED MOUNTAIN RANCH

Lot: 1 FILING 3 PART OF

BK-0343 PG-0379 MAP 07-26-82

R200625190 MAP 09-15-06 Approximately 43.573 acres

Parcel F

Tax Area SC059 - EAGLE (AREA) - SC059

Parcel Number 1939-274-00-041

Legal Summary Tract: 57 Section: 27 Township: 4 Range: 84 PCLIN Tract: 58 Section: 27 Township: 4

Range: 84 PCLIN Tract: 59 Section: 27 Township: 4 Range: 84 PCLIN Tract: 57 Section: 26 Township: 4

Range: 84 PCLIN

BK-0131 PG-0447

BK-0219 PG-0473

BK-0327 PG-0290

BK-0327 PG-0294

BK-0327 PG-0920

BK-0327 PG-0921

BK-0337 PG-0410

BK-0372 PG-0753

BK-0378 PG-0088 02-07-84

R670698 WD 09-25-98

Approximately 30.997 acres

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 59
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A REIMBURSEMENT AGREEMENT WITH RED MOUNTAIN RANCH LLLP

WHEREAS, Eagle County plans to submit to the Town an application to annex certain real property into the Town (the "Application");

WHEREAS, the Parties acknowledge that the land use filing fees set forth in the Eagle Municipal Code (the "Code") will not adequately cover the Town's expenses incurred in processing the Application; and

WHEREAS, pursuant to the terms of the attached Reimbursement Agreement, Red Mountain Ranch LLLP wishes to reimburse the Town for its additional expenses incurred in processing the Application.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO, AS FOLLOWS:

Section 1. The Town Council hereby approves the Reimbursement Agreement in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Reimbursement Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON SEPTEMBER 10, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk



To: Mayor Turnipseed and Town Council
From: Stephan Wilson, Utility Manager
Date: September 6, 2024
Agenda Item: Resolution 60, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to execute the Construction Contract with Pheonix Industries LTD. for the Cemetery Tank Replacement Project"
Resolution 61, 62, 63, 64, Series 2024 - Easements

REQUEST:

Staff requests the Council to authorize the Mayor to execute the Construction Contract with Pheonix Industries LTD. For the construction of the Cemetery Tank Replacement Project.

BACKGROUND:

Staff advertised for bidders for the Cemetery Tank Replacement Project on BidNet.

On April 25th, 2024 the Town opened the three bids received:

1. HPM, Inc.: \$5,168,117
2. Velocity Constructors Inc.: \$3,899,480
3. Phoenix Industries Ltd: \$3,624,157

The current dedicated project budget is approximately \$3,600,000 coming from budget line items 52-59-740-17. The current engineering scope of services during construction, post-construction services, and commissioning are \$193,627. Currently the difference from budget to construction cost is \$217,784. Due to the current schedule the full construction amount will not be used in 2024. It is recommended that approval includes a 10% contingency for construction costs be added to the 2025 project budget. The construction amount unused in 2024 would then be rolled into the 2025 budget to cover the project completion.

ANALYSIS:

Public Works design team prepared an estimate for the project. The Pheonix Industries LTD. bid came in 14% greater than the estimate however within the contingency ranges in the cost estimates. Given construction cost inflation and anticipated phasing of the project public works department determined that delaying the project and rebidding at a later date is unlikely to yield a significant cost reduction on the project, thus the recommendation to approve the construction contract.

COMMUNITY INPUT:

Public works held meetings with three HOA's, Sunset View Cemetery District and directly impacted individual property owners during the design phase to receive input from residents on the proposed scope of work. Public works has received CDPHE-WQCD approval for the project as well as undergoing the Eagle County 1041 FONSI, and LEA process.

BUDGET/STAFF IMPACT:

As noted in the background section, In FY 2024, the Town had budgeted \$ 3,600,000 for this project. The actual construction cost is anticipated to be \$ 3,817,784. The cost differential will need to be allocated in the 2025 CIP budget. Staff are recommending holding \$2,000,000 in the 2024 budget for grading, demolition, and site work. The remainder of the project cost will be covered out of the 2025 CIP Budget.

The total cost of easement acquisitions for permanent utility easements is \$40,200.

STRATEGIC PLAN ALIGNMENT/STANDARDS ACHIEVED:

This project aligns with the Town's 2024 Goal/Strategic Plan and Capital Improvements Plan of completing the Cemetery Tank Replacement Project which is consistent with the Strategic Plan Major Objective of Match Infrastructure to Quality of Life.

RECOMMENDED ACTION OR PROPOSED MOTION:

Motion to approve: Resolution 60, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to execute the Construction Contract with Pheonix Industries LTD. for the Cemetery Tank Replacement Project."

Motion to approve: Resolution 61, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to acquire a temporary construction easement from the Eagle Cemetery District, pursuant to the agreement attached as Exhibit "A"

Motion to approve: Resolution 62, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to acquire a permanent utility easement from the Eagle Cemetery District, pursuant to the agreement attached as Exhibit "A"

Motion to approve: Resolution 63, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to acquire a permanent utility easement from Kaibab Homeowners Association, pursuant to the agreement attached as Exhibit "A"

Motion to approve: Resolution 64, Series 2024 "A Resolution of the Town Council of the Town of Eagle, Colorado Authorizing the Mayor to acquire a permanent utility easement from 611 Green Mountain Drive Lot 9 Eagle Hills Subdivision, pursuant to the agreement attached as Exhibit "A"

ATTACHMENTS:

- Cemetery Tank Replacement_Bid Tab_2024.04.25
- Resolution 60, Series 2024 "RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AUTHORIZING THE MAYOR TO EXECUTE THE CONSTRUCTION CONTRACT WITH PHOENIX INDUSTRIES LTD. FOR THE CEMETERY TANK REPLACEMENT PROJECT (TOWN PROJECT NO.: 52-23-05)"
 - Construction Contract
- Resolution 61, Series 2024 "APPROVING A TEMPORARY CONSTRUCTION EASEMENT AGREEMENT WITH THE EAGLE CEMETERY DISTRICT"
 - TEMPORARY CONSTRUCTION EASEMENT AGREEMENT
- Resolution 62, Series 2024 "APPROVING A UTILITY EASEMENT AGREEMENT WITH THE EAGLE CEMETERY DISTRICT"
 - UTILITY EASEMENT AGREEMENT
- Resolution 63, Series 2024 "APPROVING A UTILITY EASEMENT AGREEMENT WITH THE KAIBAB HOMEOWNERS ASSOCIATION"
 - UTILITY EASEMENT AGREEMENT
- Resolution 64, Series 2024 "APPROVING A UTILITY EASEMENT AGREEMENT WITH MARGARITA PADILLA AND DANIEL MARTINEZ- Lot 9 Eagle Hills"
 - UTILITY EASEMENT AGREEMENT



**BIDDING AND CONTRACT DOCUMENTS
FOR CONSTRUCTION OF THE
TOWN OF EAGLE
CEMETERY TANK REPLACEMENT PROJECT
DATE: April 25, 2024**

M M
**MOTT
MACDONALD**

Item No.	Description	Estimate Quantity and Unit	Pheonix Industries Ltd	Velocity Constructors Inc.	HPM Contracting	Notes
				Unit Price, \$		
1	Mobilization/Demobilization	1 LS	\$ 262,922.00	\$ 184,301.00	\$ 262,148.00	
2	Demolition of Existing Tank and Vault	1 LS	\$ 85,269.00	\$ 200,591.00	\$ 152,850.00	
3	Water Pipeline	1 LS	\$ 384,484.00	\$ 494,129.00	\$ 923,979.00	
4	New Valve Vault	1 LS	\$ 165,365.00	\$ 205,716.00	\$ 282,278.00	
5	New Tank	1 LS	\$ 1,316,311.00	\$ 1,146,813.00	\$ 1,208,889.00	
6	Tank Foundation	1 LS	\$ 433,853.00	\$ 170,678.00	\$ 720,211.00	
7	Tank Area Slope Stability	1 LS	\$ 129,305.00	\$ 663,268.00	\$ 228,196.00	
8	Grading and Road Improvements	1 LS	\$ 167,910.00	\$ 250,381.00	\$ 662,301.00	
9	Grading, Erosion, Sediment Control (GESC)	1 LS	\$ 41,901.00	\$ 109,793.00	\$ 116,213.00	
10	Staging Area Improvements	1 LS	\$ 162,667.00	\$ 166,634.00	\$ 261,954.00	
11	Seeding, Topsoil, Mulching, and Irrigation	1 LS	\$ 100,653.00	\$ 33,405.00	\$ 33,114.00	
12	Traffic Control	1 LS	\$ 6,625.00	\$ 7,024.00	\$ 38,896.00	
13	Electrical and Instrumentation	1 LS	\$ 361,892.00	\$ 261,747.00	\$ 272,087.00	
14	As-Built Drawings	1 LS	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	
	Total		\$ 3,624,157.00	\$ 3,899,480.00	\$ 5,168,116.00	

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 60
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
AUTHORIZING THE MAYOR TO EXECUTE THE CONSTRUCTION CONTRACT WITH
PHOENIX INDUSTRIES LTD. FOR THE CEMETERY TANK REPLACEMENT PROJECT
(TOWN PROJECT NO.: 52-23-05)

WHEREAS, the Town of Eagle desires to contract with Pheonix Industries LTD. for the construction of the Town of Eagle Cemetery Tank Replacement Project pursuant to the standard construction contract included with the invitation to bid on the terms and conditions set forth therein; and

WHEREAS, the Town identified the Cemetery Tank Replacement Project and appropriated funds during the development of the 2024 budget;

WHEREAS, Phoenix Industries LTD. agrees to perform such services on the terms and conditions set forth in the standard construction contract;

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AS FOLLOWS:

Section 1. The Construction Contract with Phoenix Industries LTD in the amount of \$3,624,157.00 is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON September 10, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

PROJECT MANUAL

TOWN OF EAGLE CEMETERY TANK

FOR THE TOWN OF EAGLE



TOWN PROJECT NO.: 52-23-05
MOTT MACDONALD PROJECT NO.: 507406331-001

MARCH 2024

M

**MOTT
MACDONALD**

M

SET NUMBER: _____

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PROJECT MANUAL

Town of Eagle

CEMETERY TANK

Eagle, Colorado

Town Project No.: 52-23-05
Mott MacDonald Project No.: 507406331-001

March 2024

For Information Regarding this Project Contact:

Michael Altland, PE
Mott MacDonald
165 South Union Boulevard, Suite 200
Lakewood, CO 80228
+1 973-912-2523
michael.altland@mottmac.com

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SECTION 00 01 03

PROJECT DIRECTORY

Project Name: TOWN OF EAGLE CEMETERY TANK **Location:** Eagle, Colorado

Owner

Name: Town of Eagle
Address: 1050 Chambers Avenue
Eagle, CO 81631
Contact: Tom Gosiorowski, Public Works Director
Phone: 970.328.6678
E-mail: tom.gosiorowski@townofeagle.org

Civil Grading Engineer

Name: Icon Engineering
Address: 7000 S Yosemite Street, Suite 120
Centennial, CO 80112
Contact: Troy Carmann, PE
Phone: 303.221.0802
E-mail: tcarmann@iconeng.com

Process/Civil Engineer

Name: Mott MacDonald
Address: 165 South Union Boulevard, Suite 200
Lakewood, CO 80228
Contact: Michael Altland, PE
Phone: 973.912.2523
E-mail: michael.altland@mottmac.com

Geotechnical Engineer

Name: Ground Engineering
Address: 41 Inverness Drive
Englewood, CO 80112
Contact: Brian H. Reck
Phone: 303.289.1989
E-mail: brian.reck@groundeng.com

Structural Engineer

Name: Mott MacDonald
Address: 111 Wood Avenue South, Suite 500
Iselin, NJ 08830-1005
Contact: Joseph Caruso, P.E.
Phone: 973.912.2532
E-mail: joseph.caruso@mottmac.com

Environmental Consultants

Name: ERO Resources Corporation
Address: 1842 Clarkson Street
Denver, CO 80218
Contact: Nicole Den Herder
Phone: 303.830.1188
E-mail: ndenherder@eroresources.com

Electrical/Instrumentation Engineer

Name: Browns Hill Consulting
Address: 8130 Shaffer Parkway, Unit A
Littleton, CO 80127
Contact: Ted Wille
Phone: 303.454.5265
E-mail: TWille@BrownsHillEng.com

Slope Stability Engineer

Name: Mott MacDonald
Address: 165 South Union Boulevard, Suite 200
Lakewood, CO 80228
Contact: Dave Jurich, PE
Phone: 303.723.5095
E-mail: david.jurich@mottmac.com

Land Surveying Services

Name: Precision Survey & Mapping
Address: 9025 E. Kenyon Avenue, Suite 150
Denver, CO 80237
Contact: Christopher P. Juliana
Phone: 303.753.9799
E-mail: chris.juliana@precision-survey.com

END OF SECTION

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**PROJECT MANUAL FOR THE CONSTRUCTION OF
TOWN OF EAGLE CEMETERY TANK**

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BIDDING AND CONTRACTING REQUIREMENTS

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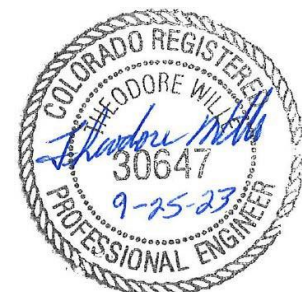
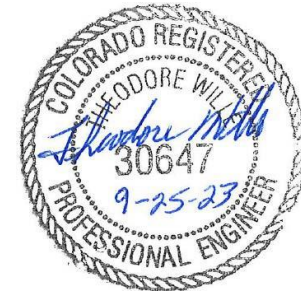
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END OF SECTION

ADVERTISEMENT FOR BIDS

TOWN OF EAGLE EAGLE, COLORADO

TOWN OF EAGLE CEMETERY TANK

General Notice

Town of Eagle (Owner) is requesting Bids for the construction of the following Project:

Town of Eagle Cemetery Tank
Town Project No. 52-23-05

Bids for the construction of the Project will be received electronically (PDF format) by:

Stephan Wilson, PE
Town of Eagle
stephan.wilson@townofeagle.org

until April 25, 2024 at 2:00 pm local time. The Project includes the following Work:

The work includes, but is not necessarily limited to, furnishing of labor, materials, and equipment for the Town of Eagle Cemetery Tank project. The project consists of demolition of the existing water storage tank and construction of a new water storage tank, road access improvements, and new piping, buried and exposed valves, electrical upgrades, site re-grading, and all appurtenant work shown on drawings and specifications.

Bids are requested for the following Contract:

Town of Eagle Cemetery Tank
Town Project No. 52-23-05

The Project has an expected duration of 310 calendar days.

Obtaining the Bidding Documents

The Bidding Documents will be made available for inspection via BidNet Direct.

Only electronic (PDF format) copies of Bidding Documents are being made available. All drawings, specifications, and addendum can be obtained from BidNet Direct. See www.bidnetdirect.com for additional information. PDF copies of Bidding Documents may be emailed to contractors upon request. Additional addenda will be released via BidNet Direct.

A pre-bid conference for the Project will be held on April 2, 2024 at 10:00 am local time at 1050 Chambers Avenue, Eagle, CO 81631. Attendance at the pre-bid conference is mandatory. All questions and RFIs are due by April 11, 2024 and must be received electronically by:

Marina D'souza
Mott MacDonald
marina.dsouza@mottmac.com
303-275-8057

and Mike Altland, PE
Mott MacDonald
Michael.altland@mottmac.com
973-912-2523

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: Town of Eagle
By: Tom Gosiorowski
Title: Public Works Director
Date: March 14, 2024

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely on sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.05.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 10 days of Owner's request, Bidder must submit the following information:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Provides a minimum of five (5) project references of similar work and contract value, including telephone and address contact information for both the Owner and Engineer (references shall include a brief project description including scope, construction cost, and major Change Order details).
 - F. Other required information regarding qualifications.
- 3.02 In determining the Bidder's qualifications, the following factors will be considered: work previously completed by the Bidder and whether the Bidder:
 - A. Provides evidence of Bidder's qualification to do business in Colorado to obtain such qualification prior to award of the contract
 - B. Maintains a permanent place of business
 - C. Has adequate labor and equipment to do the Work properly and expeditiously
 - D. Has the financial resources to meet all obligations incident to the Work
 - E. Has appropriate technical experience, and
 - F. Each Bidder may be required to show that Bidder has handled former work and that no just claims are pending against such work. No Bid will be accepted from a Bidder who is engaged in any work that would impair Bidder's ability to perform or finance this Work. A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- 5.03 *Other Site-related Documents*
 - A. No other Site-related documents are available.
- 5.04 *Site Visit and Testing by Bidders*
 - A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
 - B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
 - C. Bidders visiting the Site are required to arrange their own transportation to the Site.
 - D. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the Owner. Bidder must conduct the required Site visit during normal working hours.
 - E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
 - G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
 - H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 5.05 *Owner's Safety Program*
 - A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 5.06 *Other Work at the Site*
 - A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

- A. Direct all questions to:

Marina D’souza	and	Mike Altland, PE
Mott MacDonald		Mott MacDonald
marina.dsouza@mottmac.com		Michael.altland@mottmac.com
303-275-8057		973-912-2523

B. All questions shall be in writing. Email is acceptable.

7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner’s damages in the case of a damages-form bond. Such forfeiture will be Owner’s exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract

or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 If the Bid Form requires the identity of certain Subcontractors, Suppliers, individuals, or entities Bidders shall list all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award
- 11.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

- 11.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom the Contractor has reasonable objection.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder’s licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such

certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.02 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the

date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 Evaluation of Bids
 - A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from Colorado state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the bid.

ARTICLE 22—LOCAL BUSINESS LICENSE

- 22.01 Contractor shall hold applicable license(s) with the Town of Eagle and Eagle County as required for the completion of the work.

END OF SECTION

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **Town of Eagle, 1050 Chambers Avenue, Eagle, CO 81631.**
- 1.02 Contract Identification and Number:
 - A. Town of Eagle Project No. 52-23-05
- 1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data

ARTICLE 3—BASIS OF BID—UNIT PRICES

- 3.01 *Unit Price Bids*
 - A. Bidder acknowledges that:
 - 1. Each bid unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 - 2. Any item not specifically identified in the definition of bid items, but shown in the Contract Documents, will be included in a related bid item.
 - B. Bidder will perform the following Work at the indicated unit prices. Refer to Section 01 11 01 - Definition of Bid Items. Determination of low bidder will be the total of Base Bid Items 1-14.

1. Base Bid Items

Table 1.

Pay Item No.	Description	Estimated Quantity and Unit	Unit Price, \$	Extension, \$
1.	Mobilization/Demobilization	1 LS	\$	\$ 262,922.00
2.	Demolition of Existing Tank and Vault	1 LS	\$	\$ 85,269.00
3.	Water Pipeline	1 LS	\$	\$ 384,484.00
4.	New Valve Vault	1 LS	\$	\$ 165,365.00
5.	New Tank	1 LS	\$	\$1,316,311.00
6.	Tank Foundation	1 LS	\$	\$433,853.00
7.	Tank Area Slope Stability	1 LS	\$	\$129,305.00
8.	Grading and Road Improvements	1 LS	\$	\$167,910.00
9.	Grading, Erosion, Sediment Control (GESC)	1 LS	\$	\$ 41,901.00
10.	Staging Area Improvements	1 LS	\$	\$ 162,667.00
11.	Seeding, Topsoil, Mulching, and Irrigation	1 LS	\$	\$ 100,653.00
12.	Traffic Control	1 LS	\$	\$ 6,625.00
13.	Electrical and Instrumentation	1 LS	\$	\$ 361,892.00
14.	As-Built Drawings	1 LS	\$5,000	\$5,000
Total Base Bid (Items 1 - 14)		\$		3,624,157.00

(Dollars)

Price in Words

3.02 Equipment Sources for Base Bid

- A. Instructions: Bids provided by the bidder shall be based upon the equipment manufacturers identified in Table 2. See Instructions to Bidders for further details.

Table 2.

Equipment Items	Specification No.	Base Bid Manufacturer
1. Glass-fused-to-steel lined, bolted steel tank	43 41 12	Permastore (by Northern Steel Tanks, LLC)

3.03 Equipment Sources for Base Bid Options

- A. Instructions: For each base bid item shown in Table 3, provide as specified below:
- Base Bid – **Mandatory** – The manufacturer who's pricing is required to be used in the base bid listed below in Table 3.
 - Bidder's Option - **Optional** - At Contractor's option, alternative manufacturer's equipment may be proposed as a deduct or and add to the base bid Table 3. If and deduct or add is proposed, the Contractor shall identify the alternative manufacturer and the amount of the deduct or add. Where Contractor is not proposing a bid option, the Contractor shall indicate "N/A" under the Bidder's Option.

Table 3.

Equipment Items		Manufacturer	Bid Price Adjustment Deduct	Add
1.	Glass-fused-to-steel lined, bolted steel tank			
a.	Base Bid Source	Permastore (by Northern Steel Tanks, LLC)	X	X
b.	Bidder's Option			

3.04 Subcontractor Listing

- A. The following information is submitted for each subcontractor that will be used in the work if the Bidder is awarded the Agreement. Additional numbered pages shall be attached to this page as required. Each page shall be headed "SUBCONTRACTOR LISTING" and signed. All work to be subcontracted over \$10,000 shall be listed.

Amount of Subcontract	Name and Address of Subcontractor	Portion of Work
\$75,198	Horizon Environmental Service Durango, Co.	Erosion Control, Seeding, Mulching, Irrigation
\$23,900	Ground Engineering, Gypsum, Co	Material Testing
\$43,400	Rock Solid Solution	Rockfall Medigation
\$236,000	Rodco Concrete	All Concrete
\$916,000.00	Northern Steel Tank	Tank Manufacture & Installation

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD,
INSTRUCTIONS, AND RECEIPT OF ADDENDA**

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date
Addendum 1	4/12/24

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

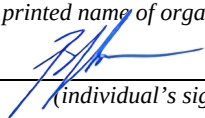
BIDDER hereby submits this Bid as set forth above:

Bidder:

Phoenix Industries LTD

(typed or printed name of organization)

By:



(individual's signature)

Name:

Roy Thomson

(typed or printed)

Title:

President

(typed or printed)

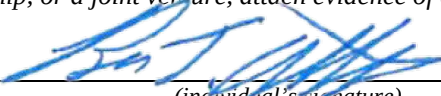
Date:

4/25/2024

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:



(individual's signature)

Name:

Brian Abernethy

(typed or printed)

Title:

Co-Owner

(typed or printed)

Date:

4/25/2024

(typed or printed)

Address for giving notices:

1338 Grand Avenue #294 Glenwood Springs, Co 81601.

Bidder's Contact:

Name:

Roy Thomson

(typed or printed)

Title:

President

(typed or printed)

Phone:

970-618-4065

Email:

roy@pi-ltd.us

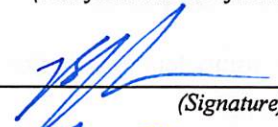
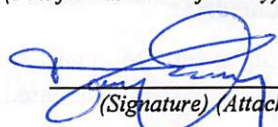
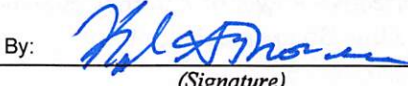
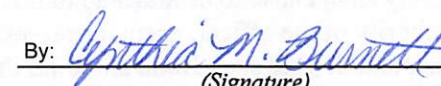
Address:

1338 Grand Avenue #294 Glenwood Springs, Co 81601.

Bidder's Contractor License No.: (if applicable)

END OF SECTION

BID BOND (PENAL SUM FORM)

Bidder Name: PHOENIX INDUSTRIES LTD Address (principal place of business): 1338 Grand Avenue, #294 Glenwood Springs, Colorado 81601	Surety Name: THE OHIO CASUALTY INSURANCE COMPANY Address (principal place of business): 175 Berkeley Street Boston, Massachusetts 02116
Owner Name: Town of Eagle Address (principal place of business): 1050 Chambers Avenue Eagle, CO 81631	Bid Project (name and location): Town of Eagle Cemetery Tank Eagle, CO Bid Due Date: April 25, 2024
Bond Penal Sum: Five Percent (5%) of the Total Amount of the Bid Date of Bond: April 25, 2024	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder PHOENIX INDUSTRIES LTD <i>(Full formal name of Bidder)</i>	Surety THE OHIO CASUALTY INSURANCE COMPANY <i>(Full formal name of Surety) (corporate seal)</i>
By:  <i>(Signature)</i>	By:  <i>(Signature) (Attach Power of Attorney)</i>
Name: <u>Roy Thomson</u> <i>(Printed or typed)</i>	Name: <u>Douglas J. Rothey</u> <i>(Printed or typed)</i>
Title: <u>President</u>	Title: <u>Attorney-in-Fact</u>
Witness: Attest By:  <i>(Signature)</i>	Witness: Attest By:  <i>(Signature)</i>
Name: <u>Kayla Thomson</u> <i>(Printed or typed)</i>	Name: <u>Cynthia M. Burnett</u> <i>(Printed or typed)</i>
Attest	Attest <u>Littleton, Colorado</u>
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8203908 - 969427**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, _____
Cynthia M. Burnett, Douglas J. Rothery, Erik Ulibarri, Kim Payton, Wes Butorac, Zach Rothery

all of the city of Littleton state of CO each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 25th day of June, 2020.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 25th day of June, 2020 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 25th day of April, 2024.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

NOTICE OF AWARD

Date of Issuance:	06/24/2024		
Owner:	Town of Eagle	Owner's Project No.:	52-23-05
Engineer:	Mott MacDonald	Engineer's Project No.:	507406331-001
Project:	Cemetery Tank		
Contract Name:	Town of Eagle, Cemetery Tank Replacement		
Bidder:	Phoenix Industries LTD		
Bidder's Address:	1338 Grand Avenue #294 Glenwood Springs, CO 81601		

You are notified that Owner has accepted your Bid dated **04/25/2024** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Town of Eagle Cemetery Tank Replacement

The Contract Price of the awarded Contract is **\$3,624,157.00**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

One unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☒ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 30 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **Three** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Town of Eagle**

By (signature): Stephan Wilson

Name (printed): Stephan Wilson

Title: Utility Manager

Copy: Engineer

EJCDC® C-510, Notice of Award.

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Section 00 51 00 – Page 1 of 2

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AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between Town of Eagle (“Owner”) and **[name of contracting entity]** (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construction of the Town of Eagle Cemetery Tank, including all relevant work as outlined in the Summary of Work and as shown on the Drawings and Specifications.

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Town of Eagle Cemetery Tank**

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained Mott MacDonald (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 Time is of the Essence

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Contract Times: Days

- A. The Work will be substantially complete within 280 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 310 days after the date when the Contract Times commence to run. Contractor to have all materials for tank construction including approved submittals and firm tank delivery dates prior to demolition of existing tank, or demolition can begin after irrigation season (mid-September), whichever is later.

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion:* Contractor shall pay Owner \$1000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1000 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive, and will not be imposed concurrently.

4.04 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price time by the actual quantity of that item)

1. Base Bid Items

Table 1

Pay Item No.	Description	Estimated Quantity and Unit	Unit Price, \$	Extension, \$
1.	Mobilization/Demobilization	1 LS	\$	\$
2.	Demolition of Existing Tank and Vault	1 LS	\$	\$
3.	Water Pipeline	1 LS	\$	\$
4.	New Valve Vault	1 LS	\$	\$
5.	New Tank	1 LS	\$	\$
6.	Tank Foundation	1 LS	\$	\$
7.	Tank Area Slope Stability	1 LS	\$	\$

8.	Grading and Road Improvements	1 LS	\$	\$
9.	Grading, Erosion, Sediment Control (GESC)	1 LS	\$	\$
10.	Staging Area Improvements	1 LS	\$	\$
11.	Seeding, Topsoil, Mulching, and Irrigation	1 LS	\$	\$
12.	Traffic Control	1 LS	\$	\$
13.	Electrical and Instrumentation	1 LS	\$	\$
14.	As-Built Drawings	1 LS	\$5,000	\$5,000
Total Base Bid (Items 1 - 14)		\$		

(Dollars)

Price in Words

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the last day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 90 percent of the value of the Work completed (with the balance being retainage).
 - 1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 - 3. General Conditions.
 - 4. Supplementary Conditions.
 - 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
 - 6. Drawings (not attached but incorporated by reference) consisting of 54 sheets with each sheet bearing the following general title: Eagle Cemetery Tank.
 - 8. Addenda (number 1, inclusive)
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages to, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages to, inclusive).
 - 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 Standard General Conditions

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Guidance Notes—Signing and Dating Agreement:

1. See Article 20 of the Instructions to Bidders and correlate procedures for format and signing of the documents.
2. The Effective Date of the Contract stated above and the dates of any construction performance bond (EJCDC® C-610, Performance Bond (2018) or other) and construction payment bond (EJCDC® C-615, Payment Bond (2018) or other) should be the same, if possible. In no case should the date of any bonds be earlier than the Effective Date of the Contract

Owner:

Town of Eagle

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

Tom Gosiorowski

(typed or printed)

Title:

Director of Public Works

(typed or printed)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

1050 Chambers Avenue

Eagle, CO 81631

Designated Representative:

Name:

Tom Gosiorowski

(typed or printed)

Title:

Director of Public Works

(typed or printed)

Address:

1050 Chambers Avenue

Eagle, CO 81631

Phone:

970.328.6678

Email:

Tom.gosiorowski@townofeagle.org

(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

Contractor:

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

License No.:

(where applicable)

State:

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NOTICE TO PROCEED

Owner: Town of Eagle Owner's Project No.: _____
Engineer: Mott MacDonald Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: Town of Eagle Cemetery Tank
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **[number of days, from Agreement]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: _____
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer

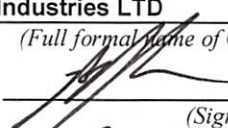
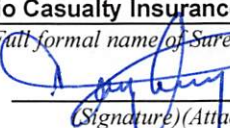
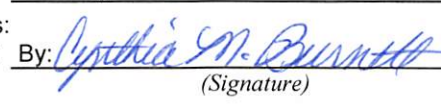
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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 - 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
14. Definitions
 - 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

- 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

PAYMENT BOND

Contractor Name: Phoenix Industries LTD Address (principal place of business): 1338 Grand Avenue, #294 Glenwood Springs, Colorado 81601	Surety Name: The Ohio Casualty Insurance Company Address (principal place of business): 175 Berkeley Street Boston, Massachusetts 02116
Owner Name: Town of Eagle Mailing address (principal place of business): 1050 Chambers Avenue Eagle, CO 81631	Contract Description (name and location): Town of Eagle Cemetery Tank Eagle, CO Contract Price: \$3,624,157.00 Effective Date of Contract:
Bond Bond Amount: \$3,624,157.00 Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☒ None ☐ See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal Phoenix Industries LTD <i>(Full formal name of Contractor)</i> By:  <i>(Signature)</i> Name: <u>Roy Thomson</u> <i>(Printed or typed)</i> Title: <u>President</u> Witness: XXXX By:  <i>(Signature)</i> Name: <u>Kayla Thomson</u> <i>(Printed or typed)</i> Title: XXXX	Surety The Ohio Casualty Insurance Company <i>(Full formal name of Surety) (corporate seal)</i> By:  <i>(Signature) (Attach Power of Attorney)</i> Name: <u>Douglas J. Rothey</u> <i>(Printed or typed)</i> Title: <u>Attorney-in-Fact</u> Witness: XXXX By:  <i>(Signature)</i> Name: <u>Cynthia M. Burnett</u> <i>(Printed or typed)</i> Title: XXXX <u>Littleton, Colorado</u>
Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;
 - 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

- 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
- 16.1.7. The total amount of previous payments received by the Claimant; and
- 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
- 17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8203908 - 969427**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Cynthia M. Burnett, Douglas J. Rothey, Erik Ulibarri, Kim Payton, Wes Butorac, Zach Rothey

all of the city of Littleton state of CO each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 25th day of June, 2020.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 25th day of June, 2020 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notary Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of _____, _____.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTRACTOR'S APPLICATION FOR PAYMENT

Owner: <u>Town of Eagle, CO</u> Engineer: <u>Mott MacDonald</u> Contractor: _____ Project: <u>Town of Eagle Cemetery Tank</u> Contract: _____	Owner's Project No.: _____ Engineer's Project No.: _____ Contractor's Project No.: _____
Application No.: _____ Application Date: _____ Application Period: From _____ to _____	

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. _____ X \$ - Work Completed	\$	-
b. _____ X \$ - Stored Materials	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4)	\$	-

Contractor's Certification
 The undersigned Contractor certifies, to the best of its knowledge, the following:
 (1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
 (2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and
 (3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____	
Signature: _____	Date: _____

Recommended by Engineer By: _____ Title: _____ Date: _____ _____ _____ _____	Approved by Owner By: _____ Title: _____ Date: _____ _____ _____ _____
--	--

Progress Estimate - Unit Price Work								Contractor's Application for Payment			
Owner:		Town of Eagle, CO						Owner's Project No.:			
Engineer:		Mott MacDonald						Engineer's Project No.:			
Contractor:								Contractor's Project No.:			
Project:		Town of Eagle Cemetery Tank									
Contract:											
Application No.:		Application Period:		From		to		Application Date:			
A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Original Contract											
					-		-		-		-
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Original Contract Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Change Orders											
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Change Order Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders											

Progress Estimate - Unit Price Work						Contractor's Application for Payment						
Owner:	Town of Eagle, CO					Owner's Project No.: _____						
Engineer:	Mott MacDonald					Engineer's Project No.: _____						
Contractor:						Contractor's Project No.: _____						
Project:	Town of Eagle Cemetery Tank											
Contract:												
Application No.: _____ Application Period: From _____ to _____ Application Date: _____												
A	B	C	D	E	F	G	H	I	J	K	L	
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)	
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)					
Project Totals				\$	-		\$	-	\$	-	\$	-

Contractor's Application for Payment

Owner:	Town of Eagle, CO	Owner's Project No.:	
Engineer:	Mott MacDonald	Engineer's Project No.:	
Contractor:		Contractor's Project No.:	
Project:	Town of Eagle Cemetery Tank		
Contract:			

Application No.: _____	Application Period: From _____ to _____	Application Date: _____
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[illegible]

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:

Engineer:

Contractor:

Project:

Contract Name:

Owner's Project No.:

Engineer's Project No.:

Contractor's Project No.:

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: _____

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

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NOTICE OF ACCEPTABILITY OF WORK

Owner:	Owner's Project No.:
Engineer:	Engineer's Project No.:
Contractor:	Contractor's Project No.:
Project:	
Contract Name:	
Notice Date:	Effective Date of the Construction Contract:

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated **[date of professional services agreement]** ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract

Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions,

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including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part

thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day*: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and
 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in

resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption,

and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
 - 1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 - 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 - 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
 - 1. The circumstances that form the basis for the requested adjustment;
 - 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 - 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 - 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 - 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b)

promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review*: Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely

obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to

indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner’s option, may purchase and maintain Owner’s own liability insurance. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
 4. not seek contribution from insurance maintained by the additional insured; and
 5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

- C. *Property Insurance for Substantially Complete Facilities:* Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
 - 1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 - 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to

Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *“Or Equals”*

- A. *Contractor’s Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an “or equal” item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor’s Expense:* Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.
- C. *Engineer’s Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete

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and Engineer determines that the proposed item is an “or-equal,” which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer’s Determination:* Neither approval nor denial of an “or-equal” request will result in any change in Contract Price. The Engineer’s denial of an “or-equal” request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor’s Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

- 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
 - F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
 - H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
 - J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

- a. Contractor shall submit the number of copies required in the Specifications.

- b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

- a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

- 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
- 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
- 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
- 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
- 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
- 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

- F. *Owner-delegated Designs:*** Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or
 - 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses,

damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay,

disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is

proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract

Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 - 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
5. *Binding Decision:* Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 - 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. Mediation

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the

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locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not

be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
2. The cost of purchasing, renting, or furnishing small tools and hand tools.
3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
6. Expenses incurred in preparing and advancing Claims.
7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish

and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of

Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final

payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work

completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress,

or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
 - 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

- 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by

Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 Waiver of Claims

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 Correction Period

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under

Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take

possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.8. *Change Order*

Delete paragraph 1.01.A.8. in its entirety and insert the following in its place:

8. *Change Order* – A document signed by Owner (including all applicable Proposed Contract Modifications (PCM's) and corresponding Proposal Requests, all of which are integral parts of a Change Order) which authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or Contract Times, issued on or after the Effective Date of the Agreement.

SC-1.01.A.33. *Resident Project Representative*

Delete paragraph 1.01.A.33. in its entirety and insert the following in its place:

33. *Resident Project Representative* – The authorized representative of Engineer or Owner who may be assigned to the Site or any part thereof. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

SC-1.01.A.51. *Proposed Contract Modification (PCM)*

Add the following new paragraph immediately after paragraph 1.01.A.50.

51. *Proposed Contract Modification (PCM)* – A document initiated by Owner, Engineer or Contractor and signed by Owner, Engineer and/or Contractor, which describes a proposed addition, deletion, or revision to the Work or an adjustment in the Contract Price or the Contract Times; and which may become an integral part of a Work Change Directive or Change Order.

SC-1.01.A.52. *Request for Information (RFI)*

Add the following new paragraphs immediately after paragraph 1.01.A.51.

52. *Request for Information (RFI)* – A document initiated by Contractor and submitted to Engineer, seeking clarification or interpretation of conflicts, errors, discrepancies, or ambiguities in the Contract Documents. RFI must be presented in writing, on the approved form. An oral RFI or an RFI presented on an unapproved form will not be accepted. Any project delay caused by Engineer's refusal to accept an oral RFI or an RFI presented on an unapproved form will be attributed solely to the Contractor.

SC-1.02.B. *Intent of Certain Terms or Adjectives*

Add the following two sentences to the end of paragraph 1.02.B.:

Command type language is used in the Contract Documents. This command language refers to and is directed to Contractor.

ARTICLE 2—PRELIMINARY MATTERS

SC-2.01 *Evidence of Contractor's Insurance*

Add the following language at the end of the last sentence of paragraph 2.01.B.:

Additional insured are as follows:

- Town of Eagle
- Mott MacDonald, LLC
- Ground Engineering
- Icon Engineering, Inc.
- ERO Resources Corporation
- Precision Survey & Mapping
- Browns Hill

SC-2.02 *Copies of Documents*

Add the following to the end of paragraph 2.02.A.:

It is Contractor's responsibility to deliver one such copy to the surety.

SC-2.03 *Before Starting Construction*

Add the following to the end of paragraph 2.03.A.3.:

- a. Include general condition costs, overhead, and profit in the total dollar value for each component part. Do not include general condition costs, overhead, or profit as separate items. Mobilization and Bond premiums may be shown as a separate item.
- b. Break down each lump-sum bid item into component parts of work for which progress payments may be requested. The total costs for the component parts of work shall equal the bid amount for that lump-sum item. The Owner may request data to verify accuracy of dollar values.
- c. Do not break down unit price bid items unless unit is shown as lump sum. Use only the bid amount for unit price items.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.03.A. *Reporting Discrepancies*

Add the following to the end of paragraph 3.03.A.3.:

“or should have known.”

SC-3.03.B. *Resolving Discrepancies*

Add the following new paragraphs immediately following paragraph 3.03.B.1.b. as follows:

2. In case of differences between the different parts of the Contract Documents, greater quantity or better quality shall govern. The Contractor shall not take advantage of any errors, discrepancies or omissions, which may exist in the plans and specifications, but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.
3. Sections of Division 1 - General Requirements govern the execution of all sections of the Specifications.
4. Requirements in detail drawings apply to all Work.

SC-3.04 *Requirements of Contract Documents*

Add the following new paragraphs after paragraph 3.04.C.

- D. The use of an RFI is limited to clarification or interpretation of the requirements of the Contract Documents. Contractor will limit each RFI to a single issue. Information which is discernable from the Contract Documents; construction means and methods; and construction site safety will not be addressed by the Engineer in responding to an RFI.
 1. Engineer's review of or response to an RFI shall not constitute an approval, direction or procedure related to the construction means, methods, techniques, sequences or procedures of Contractor.
 2. Engineer's review of or response to an RFI shall not constitute an approval, direction or procedure related to the construction site safety precautions, procedures or methodology of Contractor.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01 *Commencement of Contract Times; Notice to Proceed*

Delete paragraph 4.01.A. in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the date of the Notice to Proceed, which shall be no later than the sixtieth day (60th) after the Effective Date of the Agreement and no later than one hundred fifteen (115) days after the day of the Bid opening.

SC-4.03 *Reference Points*

Insert the following into the first sentence of 4.03.A. after the word “provide”:

“, if available,”

SC-4.05 *Delays in Contractor's Progress*

Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*
 - a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been

reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
 - 2) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **0.25 inch** of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.
 - 3) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: **15.0** degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: **100.0** degrees Fahrenheit.
- c. Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by the National Weather Service for Eagle, Colorado, Call Sign KEGE.
- d. Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Table 1—Foreseeable Bad Weather Days.
- e. In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Table 1—Foreseeable Bad Weather Days will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

TABLE 1 - Foreseeable Bad Weather Days

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January	0	6	0
February	1	6	0
March	0	1	0
April	0	0	0
May	0	0	0
June	0	0	0
July	1	0	0
August	0	0	0
September	0	0	0
October	2	0	0
November	0	1	0
December	1	1	0

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.01 Availability of Lands

Delete paragraph 5.01.B in its entirety and insert the following:

- B. Not used.

SC-5.03 Subsurface and Physical Conditions

Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Ground Engineering Geotechnical Evaluation – Cemetery Water Tank Replacement and Cell Towers – Eagle Colorado Revised	January 24, 2022	Boring Location and Logs, Laboratory Test Results, Boring Methods

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None	N/A	N/A

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at the Town of Eagle’s office during regular business hours, or may request copies from Engineer.

SC-5.04 Differing Subsurface or Physical Conditions

Add the following new paragraph immediately after Paragraph 5.04.E.4:

5. Execution of the Contract Documents by the Contractor shall constitute a representation that the Contractor has visited the site and has become generally familiar with the local conditions under which the Work is to be performed.

ARTICLE 6—BONDS AND INSURANCE

SC-6.01 Performance, Payment, and Other Bonds

Add the following paragraphs immediately after Paragraph 6.01.A:

1. Required Performance Bond Form: The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. Required Payment Bond Form: The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).
3. Any bond provided shall meet the requirements of Colorado Revised Statutes 38-26-105 and 38-26-106.

4. Bonds shall be furnished within ten (10) days of Notice of Award.

SC-6.03.5. Additional Insureds

Add the following new paragraph immediately after Paragraph 6.03.C.5.:

6. Include as additional insureds, on a primary and non-contributory basis, the additional insureds as listed in SC-2.01.B.

SC-6.03 Contractor's Insurance

Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **None**
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$1,000,000
Bodily injury by disease—aggregate	\$1,000,000
Employer's Liability	
Each Occurrence	\$1,000,000
Policy limit	Statutory
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	Statutory

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

- G. *Commercial General Liability—Form and Content:* Contractor’s commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
 6. Any limitation or exclusion based on the nature of Contractor’s work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability – Per Project	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$1,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$1,000,000 after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$2,000,000
General Aggregate	\$2,000,000

- N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$1,000,000
Annual Aggregate	\$2,000,000

- O. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$1,000,000
General Aggregate	\$1,000,000

SC-6.04 Builder's Risk and Other Property Insurance

Supplement Paragraph 6.04 of the General Conditions with the following provisions:

- F. *Builder's Risk Requirements:* The builder's risk insurance must:
1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).
 - a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise,

such insurance will be provided through other insurance policies acceptable to Owner and Contractor.

2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
5. extend to cover damage or loss to insured property while in transit.
6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
8. include performance/hot testing and start-up, if applicable.
9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds."
11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:
 - a. None

G. *Builder's Risk and Other Property Insurance Deductibles:* The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

SC-7.03 *Labor; Working Hours*

Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours consist of 8 working hours within a 9-hour period between 7:00 a.m. and 6:00 p.m., excluding Saturdays, Sundays, and holidays. Overtime work is work in excess of 8 hours per day or 40 hours per week or work not within the times specified for regular working hours.

2. The Owner acknowledges that some overtime observation will be necessary to keep the project on schedule. The Owner will provide 200 man hours of overtime observation at no cost to the Contractor. The Contractor shall reimburse the Owner for all overtime observation in excess of 200 man hours. Contractor is encouraged to schedule his work to reduce overtime observation.
3. Owner's legal holidays are: Federal and State holidays consisting of: New Year's Day, Presidents Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Friday following Thanksgiving Day, Christmas Day.

SC-7.05 "Or-Equals"

Add the following to the end of paragraph 7.05.A.:

Engineer will review "Or-Equals" submittals only within twenty-one (21) days after Notice-to-Proceed.

SC-7.06 Substitutes

Add the following to the end of paragraph 7.06.A.:

Engineer will review Substitutes submittals only within twenty-one (21) days after Notice-to-Proceed.

SC-7.07 Concerning Subcontractors and Suppliers

Add the following new paragraphs following paragraph 7.07.M.:

- N. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

SC-7.09 Permits

Add the following to the end of paragraph 7.09.A.:

1. All Contractors and their subcontractors shall obtain and pay for an Eagle County contractor license.
2. Contractor shall obtain all Eagle County required building, construction and right of way cut permits. There will be no charge for these permits for this project.
3. Contractor shall obtain and pay for the following permits:
 - a. All other applicable permits
 - b. Refer to 01 11 00 for additional information

SC-7.10 Taxes

Delete paragraph 7.10.A. in its entirety and insert the following in its place:

- A. All taxes which are lawfully assessed against Owner or Contractor in connection with the Work shall be paid by Contractor. Pursuant to Colorado Revised Statutes 39-26-114 as amended, all sales of construction and building materials for this project are exempt from State sales and use tax, local sales tax if administered by the State of Colorado, and RTD sales tax. Such sales and use taxes shall not be included in the Bid. Contractor shall be responsible for obtaining certificates of exemption from the Colorado State Department of Revenue. All local use taxes which are lawfully assessed against Owner or Contractor in connection with the Work will be paid by Contractor. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

SC-7.11 Laws and Regulations

Add the following to the end of paragraph 7.11.B.:

If Contractor observes that the Specifications or Drawings are at variance with any Laws or Regulations, they shall give Engineer prompt written notice thereof.

SC-7.18 Indemnification

Delete the word "negligent" from paragraph 7.18.A.

SC-7.18 Indemnification

Add the following paragraph at the end of paragraph 7.18.A.:

In addition to those losses set forth in the paragraph above, Contractor shall defend, indemnify and hold harmless Owner, Engineer and Engineer's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses, damages, suits, expenses, liabilities, fines, penalties and sanctions of every kind, including but not limited to reasonable attorneys fees, expert witness fees, court costs, engineering and consultants fees and investigation expenses, caused by, arising out of or resulting from an act or omission of the Contractor, any Subcontractor, any Supplier, and person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable and where such loss arises under any currently existing (or subsequently enacted or created) (i) federal, state or local law or regulation relating to the environment, health or safety; (ii) regulation, permit, order, decree, binding agreement or other binding obligation relating to the administration of such federal, state and local laws; or (iii) common-law requirements that relate to the environment, health or safety. The Owner shall select counsel of its own choosing for its investigation and defense under this paragraph.

7.20 Work by Illegal Aliens

Add the following new paragraphs immediately after paragraph 7.19.G.

7.20 Work by Illegal Aliens

- A. Contractor hereby certifies that it does not knowingly employ or contract with an illegal alien and that Contractor has participated or attempted to participate in the basic pilot employment verification programs as defined in C.R.S. Title 8-17.5-101(1) ("Program") in order to verify that it does not employ illegal aliens.
- B. Contractor shall not knowingly employ or contract with an illegal alien to perform work under this Agreement or enter into a contract with a subcontractor that fails to certify to Contractor

that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this agreement.

- C. Contractor hereby certifies that it has verified or attempted to verify through participation in the Program that Contractor does not employ any illegal alien and, if Contractor is not accepted into the Program prior to entering into this Agreement, that Contractor shall apply to participate in the Program every three (3) months until Contractor is accepted or this Agreement has been completed, whichever is earlier.
- D. Contractor is prohibited from using Program procedures to undertake pre-employment screening of job applicants while this Agreement is being performed.
- E. If Contractor obtains actual knowledge that a subcontractor performing work under this Agreement knowingly employs or contracts with an illegal alien, Contractor shall be required to:
 - 1. Notify the subcontractor and the Owner within three (3) days that Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and
 - 2. Terminate the subcontract with the subcontractor if within three (3) days of receiving the notice required pursuant to this subparagraph the subcontractor does not stop employing or contracting with the illegal alien; except that Contractor shall not terminate the contract with the subcontractor if during such three (3) days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.
- F. Contractor shall comply with any reasonable request by the Colorado Department of Labor and Employment ("Department") made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. Title 8, Article 17.5.
- G. If Contractor violates this paragraph, the Owner may terminate this Agreement for breach of contract. If this Agreement is so terminated, Contractor shall be liable for actual and consequential damages to the Owner.

ARTICLE 8—OTHER WORK AT THE SITE

SC-8.03 Legal Relationships

Add the following new paragraph immediately after paragraph 8.03.C:

- D. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

ARTICLE 9—OWNER’S RESPONSIBILITIES

SC-9.11 Evidence of Financial Arrangements

Delete paragraph 9.11.A. of the General Conditions in its entirety and insert the following in its place:

- A. Owner’s financial obligations under the Contract are subject to annual budget and appropriations of Owner. In accordance with Colorado Revised Statutes, Owner shall appropriate, prior to signing the Agreement, an amount for completion of the Work equal to or greater than the contract price indicated in Article 5 of the Agreement and shall not issue Change Orders or Written Amendments requiring additional compensable Work to be performed, which Work would cause the aggregate amount payable under the Contract Documents to exceed the amount appropriated for the original contract, unless Contractor is given written assurance by Owner that lawful appropriations to cover the cost of the additional work have been made or unless such work is covered under a remedy-granting provision in the Contract Documents.

ARTICLE 11—CHANGES TO THE CONTRACT

SC-11.02 Change Orders

Add new paragraphs immediately following paragraph 11.02.B. as follows:

- C. In signing a Change Order, the Owner and Contractor acknowledge and agree that:
 - 1. the stipulated compensation (Contract Price or Contract Times, or both) set forth in the Change Order includes payment for (i) the Cost of the Work covered by the Change Order, (ii) Contractor's fee for overhead and profit, (iii) Interruption of progress schedules, (iv) delay and impact, including cumulative impact, on other Work under the Contract Documents, and (v) extended overheads;
 - 2. the Change Order constitutes full mutual accord and satisfaction for the change to the Work;
 - 3. no reservation of rights to pursue subsequent claims on the Change Order will be made by either party; and
 - 4. no subsequent claim or amendment of the Contract Documents will arise out of or as a result of the Change Order.

SC-11.05 Owner-Authorized Changes in the Work

Add new paragraphs immediately following paragraph 11.05.C. as follows:

- D. Owner may, in anticipation of possibly ordering an addition, deletion or revision to the Work, request Contractor to prepare a proposal of cost and times to perform Owner's contemplated changes in the Work. Contractor's written proposal shall be prepared on Owner's Proposed Contract Modification (PCM) form and shall be transmitted to the Engineer promptly, but not later than fourteen days after Contractor's receipt of Owner's written request and shall remain a firm offer for a period not less than forty-five days after receipt thereof by Engineer.
 - 1. Contractor is not authorized to proceed on an Owner contemplated change in the Work prior to Contractor’s receipt of a Change Order (or Work Change Directive) incorporating such change into the Work.
 - 2. When signed by Contractor and Engineer, the Proposed Contract Modification (PCM) form becomes a formal, binding offer from Contractor to Owner and, if accepted by

Owner, it becomes an integral part of a subsequent Change Order, and Contractor's signature thereon constitutes Contractor's signing of the Change Order as referred to in these Contract Documents.

3. Owner's request for proposed contract modification or (ii) Contractor's failure to submit such proposal within the required time period will not justify a claim for an adjustment in Contract Price or Contract Times (or Milestones).

SC-11.07 *Change of Contract Price*

Add the following to paragraph 11.07.C.2.a.:

“1. Contractor’s fee shall not be applied to payroll taxes, social security contributions, or unemployment taxes. Contractor’s fee of fifteen percent shall not be applied to moveable equipment (i.e., cranes, vehicles, furniture, lab equipment, etc.) purchased and supplied to the Owner under a change in the contract price or a construction allowance. Contractor will be allowed a five percent fee in this case.”

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01.C. *Costs Excluded*

Change the first sentence of paragraph 13.01.C.5. to read:

1. Costs due to negligence or wrongful intentional acts of Contractor,...

SC-13.03 *Unit Price Work*

Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to **10** percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than **15** percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor’s unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor’s costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TEST AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.02 Tests, Inspections and Approvals

Delete Paragraph 14.02.A. in its entirety and insert the following in its place:

- A. Contractor is responsible for the initial and subsequent Inspections of Contractor's Work to ensure that the Work conforms with the Contract Documents. Contractor shall give Engineer timely notice of readiness of the Work for all non-Contractor required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

SC-14.02 Tests, Inspections and Approval

Add the following to the end of Paragraphs 14.02.B.:

Inspections, tests or approvals identified to be provided by Owner are listed in Section 01 45 10.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

SC-15.01 Final Payment

Add the following new Paragraph immediately after Paragraph 15.01.B.4:

5. Submit an updated 3 week look-ahead schedule and an updated progress schedule for review with application for payment.

SC-15.03 Substantial Completion

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

SC-15.03 Substantial Completion

Add a new Paragraph immediately following paragraph 15.03.F. as follows:

- G. Substantial Completion will have been attained when all Work has been satisfactorily completed with the exception of minor, punch list, items, and closeout submittal and the new facilities are, in the opinion of ENGINEER, ready to be put into operation.

SC-15.06 Final Payment

Add a new Paragraph immediately following paragraph 15.06.A.3. as follows:

4. Owner will upon receipt of the final Application for Payment make payment of the balance due for that portion of the Work fully completed and accepted, subject to the provisions of Title 38, Article 26, C.R.S.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

SC-16.02 Owner May Terminate for Cause

Add new Paragraphs immediately following paragraph 16.02.A.4. as follows:

5. If the Contractor should be adjudged a bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency.
6. If the Contractor should fail to make prompt payment to Subcontractors for material, labor or equipment rental.
7. If Contractor abandons the Work, or sublets this Contract or any part thereof, without the previous written consent of Owner, or if the Contract or any claim thereunder shall be assigned by Contractor otherwise than as herein specified.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

SC-17.02 Arbitration

Add the following new paragraph immediately after Paragraph 17.01.

17.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.

- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

ARTICLE 18—MISCELLANEOUS

SC-18.07 *Controlling Law*

Add the following paragraph to the end of paragraph 18.07.A.:

The provisions of the Contract, shall not be construed as a substitute for or a waiver of the provisions of the Colorado Governmental Immunity Act, part 1 of C.R.S. Title 24, Article 10, expressly including, but not limited to, the notice requirements of C.R.S. Title 24-10-109, and the limitation on judgments of C.R.S. Title 24-10-114.

SC-18.07. *Controlling Law*

Add the following paragraph following paragraph 18.07.A.:

- B. This Contract shall be governed by the laws of the State of Colorado and venue for any action shall be the District Court in and for the County of Eagle.

END OF SECTION

FIELD ORDER NO.:

Owner:
Engineer:
Contractor:
Project:
Contract Name:
Date Issued:

Owner's Project No.:
Engineer's Project No.:
Contractor's Project No.:

Effective Date of Field Order:

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:**Attachments:****Issued by Engineer**

By: _____

Title: _____

Date: _____

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WORK CHANGE DIRECTIVE NO.:

Owner:	Owner's Project No.:
Engineer:	Engineer's Project No.:
Contractor:	Contractor's Project No.:
Project:	
Contract Name:	
Date Issued:	Effective Date of Work Change Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

***Note to User: Check one or both of the following**

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ [increase] [decrease] [not yet estimated].

Contract Time: _____ days [increase] [decrease] [not yet estimated].

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

Recommended by Engineer	Authorized by Owner
By: _____	_____
Title: _____	_____
Date: _____	_____

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CHANGE ORDER NO.:

Owner:
Engineer:
Contractor:
Project:
Contract Name:
Date Issued:

Owner's Project No.:
Engineer's Project No.:
Contractor's Project No.:

Effective Date of Change Order:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments:

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Accepted by Contractor

By: _____

Title: _____

Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

By: _____

Title: _____

Date: _____

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Work Covered by Contract Documents
- B. Work By Others
- C. Work Sequence
- D. Contractor's Use of Premises and Limitations
- E. Owner Occupancy
- F. Protection of Natural Features
- G. Public Inconvenience
- H. Permits

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this Contract consists of furnishing of labor, materials, and equipment for the Eagle Cemetery Tank project. The project generally consists of the following items:

- i. Demolition of the existing 300,000 gallon water storage tank and concrete foundation.
- ii. Demolition of existing items at the tank site as shown on Drawings.
- iii. New 800,000 gallon glass-lined bolted steel water tank, including a new cast-in-place ring foundation.
- iv. Cut back slope from new tank and provide slope stability with draped mesh and anchors.
- v. New chain link fence around new water storage tank
- vi. New water pipeline and appurtenances from a tie-in in 6th Street and routed into the new water storage tank, including valves, valve vault, removal of existing pipe as required for new work, and appurtenances.
- vii. Electrical and instrumentation improvements
- viii. Access road improvement
- ix. Grading, Erosion, and Sediment Control (GESC)
- x. Asphalt patching on 6th Street
- xi. Final grading of staging area and new Cemetery access road constructed from millings provided by the Town of Eagle. Contractor will be responsible for trucking and hauling millings to the tank site from the Town of Eagle Wastewater Treatment Plant.

- xii. Seeding and revegetation. Contractor will need to install and maintain temporary irrigation. Town of Eagle will provide water for 1 year to the Sunset View Cemetery. Town of Eagle will also provide a water meter which is to be installed by the Contractor.
- xiii. Traffic Control as needed.
- xiv. Any other item shown within the Contract Documents.

- B. The Project is anticipated to have a duration of 310 calendar days. Contractor to provide all materials (approved submittals and tank delivery dates) to the Town prior to demolition of existing tank or after irrigation season (mid-September), whichever is later.
- C. Furnish all materials, equipment, supplies, appurtenances; provide all construction plant equipment and tools; and perform all necessary labor and supervision.
- D. Coordinate the progress of the Work, including coordination between trades, subcontractors, suppliers, public utilities, and Owner to ensure the progress of Work.
- E. Do not allow products containing asbestos to be built into or installed in the new construction.

1.03 WORK BY OTHERS

- A. Owner will drain the existing 300,000 gallon water storage tank and take offline for the duration of the construction. Contractor shall provide a minimum 3-weeks notice to drain the tank.

1.04 WORK SEQUENCE

- A. Construct the Work in phases to allow Owner's continuous occupancy and for uninterrupted operation of existing adjacent facilities. Coordinate construction schedule and operations with the Owner.
- B. Note that the project has been submitted to CDPHE for review, and approval is not expected until early 2024. No onsite construction activities will commence until State approval is provided.
- C. General Requirements:
 - 1. Coordinate with power company and provide temporary power and backup power as needed.
 - 2. Contractor is responsible for demolition and disposal (off site) of all work, as required.
 - 3. Contractor shall verify all dimensions, elevations, and locations of existing piping, utilities, equipment, and structures prior to new work.
 - 4. Completion of work within specified time periods may require overtime, extended construction time, or night work. Contractor's time beyond regular working hours, including overtime, is considered to be included in the Bid Price(s), and no additional compensation will be allowed.

5. At no time shall Contractor or his employees modify operation of the existing facilities or start construction modifications without approval of the Owner except in emergency to prevent or minimize damage.
6. Damage caused by the Contractor's operations shall be repaired to the complete satisfaction of the Owner and Engineer and at no additional cost to the Owner.
7. Contractor shall comply with requirements established by all regulatory agencies.

D. Work Phasing:

1. Contractor shall submit a phasing plan to Owner and Engineer for review and obtain acceptance a minimum 3 weeks prior to construction operations. The sequence of construction shall be determined by the Contractor.

1.05 CONTRACTOR'S USE OF PREMISES AND LIMITATIONS

A. General:

1. Contractor's storage and staging areas are shown on Drawings. Obtain and pay for the use of additional storage, parking, or work areas needed for construction.
2. Coordinate Use of Premises with the Engineer.
3. Assume full responsibility for the protection and safekeeping of products furnished under this Contract, stored on- or off-site. Provide a 6-foot high chain link fence around staging area with two locked access gates. Provide Town with two keys.
4. At completion of the project and removal of all construction items from the Contractor's staging area, provide smoothed surface, temporary irrigation system, reseeding. Town will provide water and annual weed control for the duration of revegetation.
5. Any damage to the pedestrian path or access from Condor Drive is the responsibility of the Contractor and will be replaced in kind by the Contractor at no additional cost to the Town.

1.06 OWNER OCCUPANCY

- A. Owner will occupy the premises during the entire period of construction. Cooperate with Owner in all construction operations to minimize conflict and facilitate Owner usage.
- B. The Contractor shall schedule his construction for completion of portions of the Work, as designated under Work Sequence, for the Owner's occupancy prior to Substantial Completion of the entire Work.
- C. Owner will occupy new facilities for the purpose of conducting his normal operations.

1.07 PROTECTION OF NATURAL FEATURES

- A. Confine all operations to work limits of the project as shown on the Drawings or specified. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees or other plants at no additional expense. Do not remove, injure, or destroy trees or plants without prior approval. Coordinate removal of roots and branches interfering with construction.

1.08 PUBLIC INCONVENIENCE

- A. The Contractor shall at all times conduct his operations to ensure the least inconvenience to the public. Closures of public rights-of-way shall be kept to a minimum. Coordinate required closures at least two weeks prior to work. Approval or disapproval will be given within seven days.
- B. Contractor's access to the site and staging area from Condor Drive is through a public trail and precautions shall be implemented to keep public off the construction site access.
- C. The public trail northeast of the staging area shall remain open. Contractor shall provide flaggers when construction activities are on or across the public trail.
- D. The project is located adjacent to the Eagle Cemetery, which is owned and operated by the Eagle Cemetery District.
 - 1. During times when a funeral service is taking place, Contractor shall stop construction activities that are within 600 feet, in any direction, of the Eagle Cemetery, until the funeral service is completed.
- E. If the nature of construction work requires temporary disruption, relocation, or modification of utility services to businesses, public facilities, or residences adjacent to the Work, provide temporary services by methods approved by the affected utility and the Engineer. Cost of such temporary services shall be included in the Bid Price(s) and no extra compensation will be allowed.

1.09 PERMITS

- A. Refer to Supplementary Conditions
- B. Owner has submitted the overall project to the Colorado Department of Public Health and Environment (CDPHE).
- C. ~~Owner has obtained Building and Grading permits that will be transferred to the Contractor's name. Contractor to coordinate with Owner.~~
- D. Contractor shall obtain the following permits for the project:
 - 1. Traffic control plan as needed for work on or around Condor Street and 6th Avenue. Contractor shall follow Eagle County and Town of Eagle requirements.
 - 2. Colorado Department of Public Health and Environment (CDPHE) stormwater and groundwater dewatering permits as needed.
 - 3. Building and Grading permits as needed.
- E. Any additional permits required for construction that are not listed above.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

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SECTION 01 11 01

DEFINITION OF BID ITEMS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. The intent of this section is to explain, in general, what is and what is not included in a bid item, and the limits or cut-off points where one bid item ends and another begins.
- B. If no bid item exists for a portion of the work, include the costs in a related bid item. All work shall be covered in the base bid items.

1.02 MEASUREMENT AND PAYMENT

- A. General
 - 1. The total bid price shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction, equipment, and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid. All work not specifically set forth as to a bid item in the bid form shall be considered subsidiary obligations of Contractor and all costs in connection therewith shall be included in the bid prices.
 - 2. Measurement for each bid item is shown on the Bid Form in Section 00 41 00 Bid Form.
 - 3. Payment shall be made for each unit actually installed, complete, and in place.
- B. Estimated Quantities
 - 1. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only:
 - a. As a basis for estimating the probable cost of the work.
 - b. For the purpose of comparing the bids submitted for the work.
 - 2. The basis of payment for work and materials will be the actual amount of work completed and materials furnished. Evaluation of work completed will be in accordance with requirements of the General Conditions.
 - 3. Except where otherwise specified, the unit or lump sum price for each item of work, which involves excavation, trenching, shoring, dewatering, and bracing, shall include all costs for such work. No direct payment shall be made for excavation, trenching, shoring, dewatering, or bracing. All excavations shall be unclassified as to materials that may be encountered. Trenches shall be unclassified as to depth.

C. Bid Schedule – Pay Items Defined

PAY ITEM NO. 1 – MOBILIZATION/DEMOLITION. This pay item includes the mobilization of personnel, equipment, and supplies at the project site in preparation for work on the project. This item shall also include the establishment of sanitary and other necessary facilities, and all other costs incurred or labor and operations which must be performed prior to beginning the other items under the contract. This item shall also include provision of required bonds and insurance. The Contractor shall be responsible for securing, at his expense, the use of any private land for establishing his work office and for storage of materials and equipment. Mobilization shall be paid for on a lump sum basis at the first partial payment meeting, after 10% of the contract amount (excluding mobilization) is earned and satisfactory progress is continuing. This pay item is limited to 5% of total bid price.

PAY ITEM NO. 2 – DEMOLITION OF EXISTING TANK AND VAULT. This pay item includes furnishing all materials, equipment and labor for demolition of the existing vault, the existing water tank, and appurtenances. Work includes, but is not necessarily limited to, demolition and disposal of existing fence, excavation, demolition and disposal of the existing reinforced concrete foundation, demolition and disposal of existing above-ground steel water storage tank and appurtenances, and demolition and disposal of existing vault.

PAY ITEM NO. 3 – WATER PIPELINE. This pay item includes furnishing all materials, equipment and labor for installation of the new waterline and appurtenances from the connection in sixth avenue to the connection to the new water storage tank. Work includes, but is not necessarily limited to, new pipe, fittings, valves, valve boxes, thrust blocks and restraints on all joints, concrete slope anchors, connection to tank, conduits, V-Bio bag encasement, concrete encasement, excavation, bedding, backfill, asphalt patching, connections, surface restoration, cleaning, disinfection, pressure testing, plugging and abandonment of existing pipe so as to not interfere with new construction, demolition and disposal of existing pipe and appurtenances where interfering with new work, draining and concrete plugging of existing pipe where cut as required for new installation, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 4 – NEW VALVE VAULT. This pay item includes furnishing all materials, equipment and labor for the construction of a new vault and appurtenances and the new tank site. Work includes, but is not necessarily limited to, new vault, interior piping, instruments, hatches, supports and connections, disinfection and testing, pressure testing, painting, surface preparation, final grading, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 5 – NEW TANK. This pay item includes furnishing all materials, equipment and labor for the construction of the new water tank and appurtenances. Work includes, but is not necessarily limited to, new fence around tank site, new glass lined and bolted steel water storage tank, piping, supports and connections, cathodic protection, disinfection and testing, pressure testing, painting, connection to new concrete foundation, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 6 – TANK FOUNDATION. This pay item includes furnishing all materials, equipment and labor for construction of new reinforced concrete foundation. Work includes, but is not limited to, reinforced concrete foundation, excavation, backfill, CLSM, compaction testing,

materials testing and inspection per technical specifications, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 7 – TANK AREA SLOPE STABILITY. This pay item includes furnishing all materials, equipment and labor for installation for cut back of slope, draped mesh, and appurtenances and the new water storage tank site. Work includes, but is not necessarily limited to, cutback of slope, draped mesh anchored to the slope, compaction testing, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 8 – GRADING AND ROAD IMPROVEMENTS. This pay item includes furnishing all materials, equipment and labor for access road improvements and potholing the electrical line (shown on the drawings) from Condor Drive to the new water storage tank and grading along access road and at the tank site. Work includes, but is not necessarily limited to, access road, compaction, testing, grading, drainage swale around tank, concrete pan and rock for tank overflow pipe, grading around tank, access road, vault, fence, potholing electrical line along three locations along the access road, and appurtenant work, and all other miscellaneous items needed for a complete installation.

PAY ITEM NO. 9 – GRADING, EROSION, SEDIMENT CONTROL (GESC). Work includes, but is not necessarily limited to preparing and implementing GESC plan, furnishing all materials, equipment and labor for vehicle construction entrances, stabilized staging areas, construction fence and locked gates, silt fence, curb stock, concrete washout areas, reinforced rock berms, erosion control mats, and any additional GESC items shown on the Drawings and included in Contractor's plan, temporary seeding, except final seeding, and all other miscellaneous items needed for a complete installation. Work required will vary according to Contractor's operations, all cost associated with changes in GESC shall be included in this pay item. Final seeding, topsoil and mulching at the Contractor's staging area is a separate pay item. Maintenance of GESC items is included in this pay item.

PAY ITEM NO. 10 – STAGING AREA IMPROVEMENTS. This pay item includes restoration of the staging area. Work includes, but is not necessarily limited to furnishing and installation of a drainage culvert, ~~culvert~~, grading of the staging area, construction of a 16 FT wide road, and all other miscellaneous items needed for a complete installation. Millings for the construction of the road to be provided by the Owner for use by the Contractor to haul to the project site.

PAY ITEM NO. 11 – SEEDING, TOPSOIL, MULCHING, AND IRRIGATION. Work includes, but is not necessarily limited to furnishing all materials, equipment and labor for clearing, grubbing, seeding, topsoil, and fertilizing and mulching of all disturbed areas as defined on the Drawings and as specified. Work also includes maintenance of seeding until seeding is established. Grass seed (Dry Native Mountain Mix) to be planted for revegetation: Dry Native Mountain Mix (50 Lbs) (eaglecountycd.com)
Work also includes a temporary irrigation system located within the limits of the stockpile/storage/staging area that is defined on the drawings. Irrigation system work to be provided by the Contractor at the completion of the project when the stockpile/storage/staging area is no longer needed by the Contractor. The Owner will provide irrigation water for revegetation as well as a water meter. The Contractor shall install the water meter off of the existing Cemetery District tap.

PAY ITEM NO. 12 – TRAFFIC CONTROL. This pay item includes furnishing all materials, equipment and labor for traffic control measures and obtaining all permits necessary to complete the work. Maintenance of traffic control is included in this pay item.

PAY ITEM NO. 13 – ELECTRICAL AND INSTRUMENTATION. This pay item includes furnishing all materials, equipment and labor to provide electrical and instrumentation and appurtenances. Work includes, but is not necessarily limited to, relocation of existing telephone equipment and appurtenances, tank level sensor, pressure transducer, flow meter, connecting to existing panel and equipment, new lighting panel, vault water on floor, tank float, tank hatch intrusion, new radio tower with radio and foundation, all conduit and conductors, grounding, and any other miscellaneous items needed for a complete installation.

PAY ITEM NO. 14 – AS-BUILT DRAWINGS. This pay item includes a not-to-exceed cost of \$5,000 for completing and submitting full size as-built Drawings, and GPS survey data. Work includes updating drawings for items related to differences of installed items, items modified by PCMs, Change Orders, or RFIs, and items included in bid addendum. Payment will be made once As-Built Drawings are complete, in the opinion of the Engineer and Owner. No partial payment will be made.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 25 13

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Products
- B. Substitutes and “Or Equal” Items
- C. Request for Substitutions

1.02 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying, and erection of the Work. Products may also include existing materials or components required for reuse.

1.03 SUBSTITUTES AND “OR EQUAL” ITEMS

- A. Refer to Section 00 72 00 – General Conditions
- B. Refer to Section 00 73 00 – Supplementary Conditions

1.04 REQUEST FOR SUBSTITUTIONS

- A. Engineer will review request for substitutions only within 21 days after Notice-to-Proceed.
- B. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- C. Submittal Procedure
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit adequate information such as shop drawings, product data, and certified test results attesting to the proposed product equivalence.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 31 19
PROJECT MEETINGS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Work Covered by Contract Documents.
- B. Project related meetings to be held throughout the duration of the Work.

1.02 GENERAL

- A. Contractor shall attend all Project meetings. Contractor's representatives shall include supervisor or Superintendent and shall have the required authority to commit the Contractor to solutions agreed upon. Other Contractor representatives may attend Project meetings.
- B. Contractor shall provide all pertinent Work-related reports or documents for each meeting as requested by the Owner.
- C. Contractor will record minutes of all meetings and will furnish copies to the Owner and Engineer. Recipients of copies may make and distribute such other copies as they wish.

1.03 PRECONSTRUCTION CONFERENCE

- A. See Section 00 72 00 - General Conditions.

1.04 PROGRESS MEETINGS

- A. Progress meetings will be held throughout the duration of the Project. Meeting schedule and location will be determined at the Preconstruction Conference. Progress meetings shall be held as a minimum on a bi-weekly basis.
- B. Contractor will prepare agenda and meeting minutes.
- C. Contractor to provide updated 3-week schedule and project schedule at least 2 days prior to progress meetings.
- D. Suggested Agenda
 1. Review of Work progress
 2. Field observations, problems, and conflicts
 3. Problems that impede construction schedules
 4. Review of off-site fabrication and delivery schedules
 5. Corrective measures and procedures to regain projected schedules
 6. Revisions to construction schedules
 7. Plan progress schedules during succeeding work period

8. Coordination of schedules
9. Review submittal schedules; expedite as required
10. Maintenance of quality standards
11. Review proposed changes for effect on construction schedules and on completion dates
12. Other business

1.05 OTHER MEETINGS

- A. Other meetings will be held from time to time as may be requested by the Owner or Contractor. Time and place of meetings and persons to attend shall be as mutually agreed upon.
- B. Other meetings shall also include meetings with regulatory agencies. When requested, the Contractor shall attend meetings held or required by governmental regulatory agencies having jurisdiction of the Work.
- C. Other meetings also include Post-Construction Conference. The Post-Construction Conference will be held prior to initial acceptance of the Work to discuss and resolve all unsettled matters.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Electronic Submittals
- B. Submittal Procedures
- C. Construction Progress Schedules
- D. Proposed Products list
- E. Shop Drawings
- F. Operation and Maintenance Manuals and Equipment Record Sheets
- G. Samples
- H. Project Record Documents
- I. Manufacturers' Certificates of Proper Installation
- J. Construction Photographs
- K. Video Recording

1.02 ELECTRONIC SUBMITTALS

- A. Unless specifically accepted in this specification, by Owner, or elsewhere in the Contract Documents, each submittal shall be made in an electronic format. Any submittal that is not electronically submitted will be rejected.
- B. Samples shall be submitted via hard copy as described in this section. Other submittals that include large format drawings or very lengthy documents may be considered by Owner for hardcopy distribution.
- C. Each submittal shall be an electronic file in the Adobe Acrobat Portable Document Format (PDF). Use the latest version available at the time of execution of the Agreement. Electronic files which contain more than 10 pages in Adobe Acrobat format shall contain internal book-marking from an index page to major sections of the document. PDF files shall be set to open “Bookmarks and Page” view. General information shall be added to each PDF file, including Title, Subject, Author, and Keywords.
- D. PDF files shall be unsecured, unencrypted and not password protected. The following actions within Adobe Acrobat shall be allowed:

1. Printing
 2. Changing
 3. Assembling
 4. Content copying or extraction
 5. Extraction for Access
 6. Commenting
 7. Fitting of form fields
 8. Signing
 9. Creation of duplicate information
- E. The PDF files shall be set up to print legibly at either 8.5-inch by 11-inch, 11-inch by 17-inch or 22-inch by 34-inch paper sizes. No other paper sizes will be accepted.
- F. New electronic files shall be required for each re-submittal.
- G. Each submittal shall also include the Engineer's form attached to this Section.
- H. Every page in a submittal shall be numbered in sequence.
- I. Contractor shall provide the Engineer/Owner with the authorization to reproduce and/or redistribute each file as many times as necessary for the project.
- J. Contractor shall include all costs for preparation of electronic and hard copies of the submittal material in its bid, including all re-submittals, record copies, and final copies.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with the attached Submittal Transmittal form.
- B. Ensure that each submittal covers only one specification section.
- C. Sequentially number the transmittal forms. Ensure that resubmittals have original number with an alphabetic suffix.
1. Example:
 - a. 01-013300 (original submittal)
 - b. 01A-013300 (resubmittal of submittal)
 - c. 01-O-M-01330 (original O&M)
 - d. 01-O-MA-013300 (resubmittal of O&M)
- D. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- E. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Stamp shall read:

"(Contractor's Name) represents that we have determined and verified all field dimensions and measurements, field construction criteria, materials, catalog numbers, and similar data, and that we have checked with the requirements of the Specifications and Drawings, the Contract Documents, and General Conditions".

- F. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with complete pertinent data capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Sufficient level of detail shall be presented for assessment of compliance with the Contract Documents.
- G. Do not mark the submittals in red. Ensure that any marks are duplicated on all copies submitted. Outline the marks on reproducible transparencies with a rectangular box.
- H. Schedule submittals to expedite the Project, and deliver to:

Mott MacDonald
165 S Union Boulevard, Suite 200
Lakewood, CO 80228
Attn: Marina D'souza, Marina.Dsouza@mottmac.com
- I. Coordinate submission of related items.
- J. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- K. Provide space for Contractor and Engineer review stamps.
- L. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- M. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- N. Resubmittals
 1. When the submittals are returned marked "REVIEWED" or "REVIEWED AS NOTED", no resubmittals need to be furnished unless requested by Engineer at time of review.
 2. When the submittals are returned marked "REVISE & RESUBMIT" resubmittals shall be furnished.
 3. Contractor shall accept full responsibility for the completeness of each resubmittal. Contractor shall verify that all correct data and additional information previously requested by Engineer are provided on the resubmittal.
 4. In each resubmittal, Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by Engineer on previous submissions.

- O. Informational submittals shall be submitted by the Contractor to verify compliance with the Contract Documents but will not be reviewed by the Engineer for approval. Informational submittals include, but are not limited to the following:
1. Quality Assurance / Quality Control (QA/QC)
 2. Design Data
 3. Field Test Reports
 4. Qualification Statements
 5. Manufacturer's Certificates
 6. Manufacturer's Installation Instructions
 7. Manufacturer's Field Reports
 8. Construction Progress Schedules
 9. Construction Photographs

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 15 days after date of Owner-Contractor Agreement for Engineer review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit computer generated network analysis diagram using the critical path method, generally as outlined in Associated General Contractors of America (AGC) publication "The Use of CPM in Construction — A Manual for General Contractors and the Construction Industry".
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Illustrate order and interdependence of activities and sequence of Work: how start of a given activity depends on completion of previous activities, and how completion of the activity may restrain start of subsequent activities.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.05 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Owner-Contractor Agreement, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.06 SHOP DRAWINGS

- A. Wherever Shop Drawings are called for in the Contract Documents or where required by Owner, Contractor shall furnish electronic submittals in Adobe Acrobat Portable Document Format (PDF) as described in this section. In addition, two reproducible hard copies plus one electronic copy of the PDF Shop Drawing submittal on USB Flash Drive shall be provided for use on the Site.
- B. Shop Drawings may include detailed design calculations, shop-prepared drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. If Contractor is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch and in Colorado, unless otherwise indicated.
- C. Shop Drawing submittals shall be accompanied by the Engineer's cover form attached, an electronic copy of which will be provided by Engineer. A submittal without the form or where applicable items on the form are not completed will be returned for resubmittal.

1.07 OPERATION AND MAINTENANCE MANUALS AND EQUIPMENT RECORD SHEETS

- A. Submit Operation and Maintenance (O&M) Manuals and Equipment Record Sheets as follows:
 - 1. Submit Operation and Maintenance Manual information and Equipment Record Sheets specific to one piece of equipment or material to the Engineer for review. This includes:
 - a. Equipment Maintenance Summary Sheet
 - b. Recommended Preventative Maintenance Schedule
 - 2. After Operation and Maintenance Manual and Equipment Record Sheets submittals for each piece of equipment or material have been reviewed, assemble the submittals into bound final Operation and Maintenance Manuals.
- B. Provide within thirty (30) days after the date Shop Drawings are reviewed, submittals of the Operation and Maintenance Manual information and Equipment Record Sheet.
- C. Submit the transmittal form for the Operation and Maintenance Manual and Equipment Record Sheets with the original shop drawings submittal number of the accepted item plus a suffix "OM".
- D. Equipment Record Sheets. A copy of these forms are attached to this section. Include fully filled out copies of these sheets as the first page(s) of each Operation and Maintenance Manual. Fill out maintenance requirements in detail. Simply noting to refer to the Operation and Maintenance Manual is NOT acceptable. General order of documents is as follows:

1. Cover Sheet (indicate equipment, manufacturer information, etc.)
 2. Table of Contents
 3. Equipment Maintenance Summary form
 4. Recommended Preventative Maintenance Schedule form
 5. O&M Manual
- E. Operation and Maintenance Manual submittals. Submit Operation and Maintenance Manuals for each individual piece of equipment supplied, but not necessarily limited to, the following detailed information, as applicable:
1. Equipment function, normal operating characteristics, limiting conditions.
 2. Assembly/disassembly, installation, alignment, adjustment, checking instructions.
 3. Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions.
 4. Lubrication and maintenance instructions.
 5. Guide to "troubleshooting".
 6. Parts list predicted life of parts subject to wear, and replacement parts ordering instructions.
 7. Spare parts list with current price information.
 8. List of special tools.
 9. Outline, cross-section, and assembly drawings; engineering data; and electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams and interconnection diagrams where applicable.
 10. Test data and performance curves; where applicable.
 11. Safety considerations.
- F. Where an Operation and Maintenance Manual submittal has been prepared by the manufacturer to cover more than one model of a particular piece of equipment, delete or cross out all references to models other than the one specifically installed.
- G. Submit final Operation and Maintenance Manuals printed on 8-1/2 x 11-inch size heavy first quality paper with standard 3-hole punching and bound in stiff metal hinged binder constructed as a 3-post style suitable for bookshelf storage or as otherwise accepted. Provide outside of binders with titles. Tab each section of manuals for easy reference to each piece of equipment or material with plastic-coated dividers. Provide index for each manual.
- H. Reduce drawings or diagrams bound in manuals to an 8-1/2 x 11-inch or 11 x 17-inch size. However, where reduction is not practical to ensure readability, fold larger drawings separately and place in vinyl envelopes which are bound into the binder. Identify vinyl envelopes with drawing numbers.
- I. Include in Operation and Maintenance Manual copies of installation instructions, original parts lists, or other documents packed with equipment when delivered.

- J. Where the drawings and specifications identify a piece of equipment by an instrument tag number or equipment number, use that same number to identify the equipment in the Operation and Maintenance Manual.
- K. Submittal Procedures for Final Operation and Maintenance Manuals. Submit four (4) completed copies of final Operation and Maintenance Manual with Equipment Record Sheets as described previously.

1.08 SAMPLES

- A. Where required, submit two (2) samples each to address indicated above. Identify samples as to: manufacturer, item, use, type, project designation, tag number, specification section or drawing detail reference, color, range, texture, finish and other pertinent data.
- B. Forward with transmittal letters, include brochures and installation instructions. Stamp on samples of transmittals as indication of his checking and verification of dimensions and coordination with interrelated items. Resubmit samples of rejected items.
- C. Acceptable samples submitted or constructed, constitute criteria for judging completed work. Finish work or items not equal to samples will be rejected.
- D. Samples may be retained for comparison purposes and the Contractor shall remove samples when directed. The contractor shall include in bid all costs of furnishing and removing samples.

1.09 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other Modifications to the Contract
 - 5. Reviewed shop drawings, product data, and samples
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish main floor datum
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements
 - 3. Provide GPS coordinates of all underground fittings, valves, and changes in pipe diameter

4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work
 5. Field changes of dimension and detail
 6. Details not on original Contract Drawings
- E. Delete Engineer title block and seal from all documents.
- F. Submit documents to Engineer with claim for Substantial Completion.

1.10 MANUFACTURER'S CERTIFICATES OF PROPER INSTALLATION

- A. See Section 01 45 00 Quality Control.

1.11 CONSTRUCTION PHOTOGRAPHS

- A. Eight (8) photographs shall be taken each month for the duration of the Contract at the time and locations as directed by the Engineer.
- B. A minimum of ten (10) photographs shall be taken at pre-construction and a minimum of ten (10) photographs at final construction. The final photographs shall be taken from the same locations as the preconstruction photographs.
- C. Photographs shall be submitted digitally on a USB Flash Drive. Electronic photographs shall be high resolution and shall be a minimum of 1.5 MB as obtained by a 4-megapixel or higher camera. Photographs shall be submitted with each application for payment.
1. All photographs shall be consecutively numbered.
 2. Each electronic photograph shall have the photograph number, date taken and project name clearly marked on the filename as follows:
photo#-mmddyy-project name
- D. Upon the completion of the project, the Contractor shall submit a complete USB Flash Drive of all the photographs for the project to the Engineer.
- E. Provide an MS Excel file listing each photograph by file name, location, date, etc.

1.12 VIDEO RECORDING

- A. Prior to starting work on project, the Contractor shall walk the project with the Owner to determine the condition of existing features such as floors, equipment, doors, access openings, piping, sidewalks, roads, curbs & gutters, above-ground utilities, trees, fences, signs, and appurtenances that will remain.
- B. The Contractor shall videotape, in color, the proposed work areas prior to construction to note preconstruction conditions. A copy of the USB Flash Drive shall be submitted to the Owner and Engineer a minimum of two working days before any work begins.

1.13 SCHEDULES

- A. Submit an updated 3 week look-ahead schedule and updated overall progress schedule with each application for payment.

PART 2 – PRODUCTS Not used.

PART 3 – EXECUTION Not used.

END OF SECTION

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SUBMITTAL TRANSMITTAL FORM

SUBMITTAL TRANSMITTAL NO.	ROUTING	NO. OF COPIES	DATE SENT	DATE RECEIVED
OWNER: Town of Eagle	<i>Contractor to Engineer</i>			
PROJECT: Cemetery Tank	<i>Engineer to Contractor</i>			
CONTRACTOR:				
SUBCONTRACTOR/SUPPLIER:				
SUBMITTAL				
ITEM NO.	DESCRIPTION OF ITEM			
SPEC SECTION:		EQUIPMENT DESIGNATION:		
DRAWING NO.:		LOCATION:		
OTHER:				
CONTRACTOR'S VERIFICATION				
Contractor represents that we have determined and verified all field dimensions and measurements, field construction criteria, materials, catalog numbers, and similar data, and that we have checked with the requirements of the Specification and Drawings, the Contract Documents, and General Conditions. ☐ Without Exception ☐ Except for the Following Deviations:				
By:		Date:		
SUBMITTAL REVIEW				
This review is only for general compatibility with the design concept of the project and general conformance with the information given the Contract Documents. Notations made on the shop drawings do not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at job site; quantities required; fabrication processes and techniques of construction; coordination of the work of all trades and satisfactory performance of the work ☐ Reviewed ☐ Revise and Resubmit ☐ Informational Submittal/Not Subject to Review ☐ Reviewed As Noted ☐ Rejected SEE SPECIFIC COMMENTS: ☐ Review Comments Sheet ☐ Submittal				
By:		Company:		Date:

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EQUIPMENT MAINTENANCE SUMMARY FORM

TOWN OF EAGLE CEMETERY TANK

Equipment:						Equipment Number:		
Location:						Spec. Section:		
Mfr:						Phone:		
Address:								
Area Rep:						Phone:		
Address:								
ELECTRICAL NAMEPLATE DATA								
Serial No.:		ID No.:		Model No.:			Frame No.:	
Mfr. No.:	HP:	V:	AMP:	HZ:	Phase:	RPM:	SF:	Duty:
Cat No.:	Code:	Insl. Cl.:	Design:	Type:	°C Amp:	NEMA Des.	Rating:	Ratio:
Class:		Group:		Staft End Brg:			Opposite End Brg:	
Miscellaneous Nameplate Data:								
Recommended Spare Parts:								
Lubricants: Summer _____ Winter _____								
MECHANICAL EQUIPMENT NAMEPLATE DATA								
Serial No.:		ID No.:		Model No.:			Frame No.:	
Mfr. No.:		HP:	RPM:	Capacity:	Size:	Code:	Case No.:	
Cat No.:		TDH:	Imp Sz:	Ratio:	Max RPM:	Min RPM:	Lube Inst.:	
Belt No.:		CFM:	Form:	Press:	Const:	Assy No.:	Order No.:	
Recommended Spare Parts:								
Lubricants: Summer _____ Winter _____								

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RECOMMENDED PREVENTATIVE MAINTENANCE SCHEDULE FORM

TOWN OF EAGLE CEMETERY TANK

[illegible]

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SECTION 01 42 00

ABBREVIATIONS

PART 1 – GENERAL

1.01 ABBREVIATIONS

Whenever in these Contract Documents the following abbreviations are used, the intent and meaning shall be interpreted as follows:

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers' Association
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	American Woodwork Institute
AWPA	American Wood Preservers' Association
AWPI	American Wood Preservers' Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association
BIA	Brick Institute of American (Successor to SCPI)
CBMA	Certified Ballast Manufacturers' Association
CDA	Copper Development Association
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers' Association of America
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute

DFPA	Douglas Fir Plywood Association (APA)
Fed.Spec.	Federal Specifications
HI	Hydraulic Institute
HMI	Hoist Manufacturers' Institute
IBC	International Building Code
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers, Inc.
ICEA	Insulated Cable Engineers' Association
IPCEA	Insulated Power Cable Engineers' Association
ISA	Instrumentation Society of America
JIC	Joint Industry Conferences of Hydraulic Manufacturers
MIL	Military Specification
MMA	Monorail Manufacturers' Association
NBFU	National Board of Fire Underwriters
NBHA	National Builders' Hardware Association
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Forest Products Association
NFPA	National Fire Protection Association
NHTSA	National Highway Traffic Safety Administration
NLMA	National Lumber Manufacturers' Association
NWMA	National Woodwork Manufacturers' Association
OECI	Overhead Electrical Crane Institute
OSHA	Occupational Safety and Health Act (both Federal & State)
PS	Product Standards Section - U.S. Department of Commerce
RLM	RLM Standards Institute, Inc.
RMA	Rubber Manufacturers' Association
SAE	Society of Automotive Engineers
SDI	Steel Door Institute
SSPC	Steel Structures Painting Council
TEMA	Tubular Exchanger Manufacturers' Association
TCA	Title Council of America

UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
UPC	Uniform Plumbing Code

WWPA	Western Wood Products Association
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Unless a particular issue is designated, all references to the above specifications, standards, or methods shall, in each instance, be understood to refer to the issue in effect (including all amendments) on the date of the Invitation to Bid.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

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SECTION 01 45 00

QUALITY CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation
- B. Field samples

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Contractor shall secure and pay for the service an independent inspection and testing laboratory to perform inspections and tests required as described in individual Sections. See Section 01 45 29 – Testing and Laboratory Services for additional requirements.
- B. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- C. Comply fully with manufacturers' instructions, including each step in sequence.
- D. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- F. Perform work by persons qualified to produce workmanship of specified quality.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.03 MANUFACTURERS' FIELD SERVICES AND CERTIFICATES OF PROPER INSTALLATION

- A. When specified in Contract Documents, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, test, adjust, and start-up of equipment, and to initiate instructions when necessary.
- B. Provide certificate stating that the equipment or system has been installed in accordance with the manufacturer's recommendation and has been inspected by a manufacturer's authorized representative, that it has been serviced with the proper initial lubricants, that

applicable safety equipment has been properly installed, and that the proper electrical and mechanical connections have been made.

C. Submit report within 30 days of observation to Owner and Engineer for review.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 45 10

TESTING AND LABORATORY SERVICES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Quality assurance and control of installation
- B. Field samples
- C. Testing laboratory services

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders, or approvals of public authorities.
- B. Respective Sections: Certification of products.
- C. Each Section listed: Laboratory tests required and standards for testing.

1.03 RELATED SECTIONS

- A. Section 00 72 00 General Conditions
- B. Section 00 73 00 Supplementary Conditions
- C. Section 01 45 00 Quality Control
- D. Sections outlined in Article 1.04 herein

1.04 INSPECTION AND TESTING LABORATORY SERVICES

- A. Testing Laboratory inspection, sampling and testing is required for but not limited to the following:
 - 1. Section 03 30 00 – Cast-in-Place Concrete
 - 2. Section 03 05 16 – Precast Concrete Utility Structures
 - 3. Section 31 23 00 - Earthwork for Utilities and Structures
 - 4. Section 33 02 01 – Pipe and Pipe Fittings General Statement
 - 5. Section 33 02 02 – Disinfection of Piping Structures and Facilities
 - 6. Section 43 41 12 – Glass Lined Bolted Steel Tank
- B. Distribute reports of all tests made by testing laboratories to:
 - 1. 1 copy – Owner
 - 2. 1 copy – Engineer
 - 3. 1 copy – Contractor

4. 1 copy – Applicable supplier or subcontractor

1.05 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Approve or accept any portion of the work.
 3. Perform any duties of the Contractor.
 4. Stop the work.

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor shall secure and pay for the service an independent inspection and testing laboratory to perform inspections and tests required as described in individual Sections.
- B. Owner may elect to conduct additional independent 3rd party testing through a separate contract or testing agency at Owner's expense. Contractor shall coordinate with the independent inspection and testing laboratory ensuring the required testing is performed.
- C. The inspection and testing laboratory will perform inspections, tests and other services specified in individual specification sections and as required by Engineer and/or Owner.
- D. Inspections, testing, and source quality control may occur on or off project site.
- E. Cooperate with inspection and testing laboratory; furnish samples of materials, approved design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
- F. Make arrangements with inspection and testing laboratory and pay for additional samples and tests required for Contractor's use.
- G. Notify laboratory sufficiently in advance of operations (at least 48 hours prior to required test) to allow for laboratory assignment of personnel and scheduling of tests.
- H. Testing and performance requirements will vary by jurisdiction and it is Contractor's responsibility to satisfy testing requirements of specific jurisdictional authority. Copies of all testing results and related reporting shall be furnished promptly to Engineer.
- I. Testing and employment of inspection and testing laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- J. Re-testing or re-inspection required because of non-conformance with requirements of the Contract Documents shall be the responsibility of the Contractor and performed by the same inspection and testing laboratory. All costs for re-testing or re-inspection will be at Contractor's expense.

- K. Inspection and testing laboratory responsibilities include:
1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
 3. Perform sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials, mixes and compaction with requirements of Contract Documents.
 5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 6. Perform additional tests required by Engineer.
- L. Inspection and testing laboratory reports:
1. After each test, copies of reports prepared by inspection and testing laboratory shall be submitted and to Engineer, Owner, Contractor, and Applicable supplier or subcontractor in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
 2. When requested by Engineer test results shall be interpreted.
 3. The following will be included with each report:
 - a. Date issued
 - b. Project title and number
 - c. Name of inspector
 - d. Date and time of sampling or inspection
 - e. Identification of product and specifications section
 - f. Location in Project
 - g. Type of inspection or test
 - h. Date of test
 - i. Results of tests
 - j. Conformance with Contract Documents
- M. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard requirements for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.
- N. Furnish incidental labor and facilities:
1. To provide access to work to be tested.
 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01 50 10

PROTECTION OF EXISTING FACILITIES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Protect all existing utilities and improvements not designated for removal and restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than prior to such damage or temporary relocation.

1.02 DEFINITIONS

- A. Excavation: Any digging, trenching, auguring, backfilling, ditching, grading, plowing-in, pulling-in, ripping, scraping or tunneling.

1.03 RIGHTS-OF-WAY

- A. The Contractor shall not do any Work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the Contractor enter upon the rights-of-way involved until notified that the Owner has secured authority from the proper party.
- B. Copies of encroachment agreements and encroachment requirement for work in existing rights of way are included in the Supplement section of this specification. Implement actions required by those agreements and guidelines.
- C. Requirements for work near high voltage overhead power transmission lines are provided as Supplement A to this section. Contractor shall be responsible for taking all necessary precautions and complying with these clearance requirements.
- D. After authority has been obtained, Contractor shall give said party due notice of Contractor's intention to begin work, if required by said party, and remove, shore, support, or otherwise protect such pipeline, transmission line, ditch, fence, or structure, or replace the same.

PART 2 – PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 PROTECTION OF STREET OR ROADWAY MARKERS

- A. Do not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization.

- B. No pavement breaking or Excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. Survey markers or points disturbed shall be accurately restored after street or roadway resurfacing has been completed.
- C. Contractor is responsible for the cleanliness and safety of all roadways adjacent to the construction site. If at any time, these roadways are found to be dangerous or not passable due to debris or mud, local jurisdictions may shut down the project until necessary clean-up is carried out by the contractor at his expense. If clean-up is deemed to be unsatisfactory or if the local jurisdiction chooses, the local jurisdiction may carry out required clean-up and bill the Owner or Contractor. The Contractor is required to incur the cost of all such clean-up.

3.02 RESTORATION OF PAVEMENT

- A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. The pavement restoration requirement to match existing sections shall apply to all components of existing sections, including sub-base, base, and pavement. Temporary and permanent pavement shall conform to the requirements of the affected pavement owner. Pavements which are subject to partial removal shall be neatly saw-cut in straight lines.
- B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- C. Permanent Resurfacing: Contractor shall comply with any agency requirements associated with permanent resurfacing in the jurisdiction that resurfacing is completed. In order to obtain a satisfactory junction with adjacent surfaces, saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along Excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions. If no such period of time is so fixed, maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

3.03 EXISTING UTILITIES AND IMPROVEMENTS

- A. Protect underground utilities and other improvements which may be impaired during construction operations, regardless of whether or not the utilities are indicated on the Drawings. Take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Maintaining in Service: Unless indicated otherwise, oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the Project Manager are made with the owner of said utilities.
- C. Except where the Drawings indicate utilities have been field located during design or certain utility locations will be exposed as part of the Work, make exploratory Excavations as deemed necessary to determine the exact locations and depths of utilities which may interfere with the Work. All such exploratory Excavations shall be performed within a sufficient time in advance of construction to avoid possible delays. Notify the Project Manager if such exploratory Excavations show the noted utility locations to be in error.
- D. Utilities to be Relocated: If necessary, to relocate the property of any utility owner, coordinate with the utility owner to relocate such property.
- E. Underground Utilities Indicated: Existing utility lines that are indicated or the locations of which are made known to the Contractor prior to Excavation and that are to be retained, and all utility lines that are constructed during Excavation operations shall be protected from damage and, if damaged, shall be immediately repaired or replaced, unless otherwise repaired by the owner of the damaged utility. If the owner of the damaged facility performs its own repairs, Contractor shall reimburse said owner for the costs of repair.
- F. Underground Utilities Not Indicated: In the event of damages to existing utility lines that are not indicated or the locations of which are not made known to the Contractor prior to Excavation, immediately report the damage to the owner of the damaged utility. Also provide an immediate verbal report of such damage to the Project Manager, to be followed by a prompt written report to both the Arapahoe County Water and Wastewater Authority Project Manager and the utility owner.
- G. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other Work.

3.04 UTILITY COORDINATION

- A. Contact and coordinate with utility companies regarding protection of existing utilities and special requirements at utility crossing locations and other conditions where the Work is

nearby existing utilities. Contractor shall be responsible for all costs of coordination with utilities including but not limited to outages, protection or support and any fees for costs from the utility. Furnish copies of all written agreements obtained by Contractor to the Owner and Engineer.

3.05 TREE PRUNING AND PROTECTION

- A. Where tree pruning is required, hire a certified arborist to perform any necessary pruning in accordance with International Society of Arboriculture (ISA) standards. Pruning for utility line clearance shall be done in accordance with ISA standards and any pruning guidelines adopted by the county of jurisdiction. Contractor shall notify the Owner and Engineer of any needed pruning that has not been identified on the Drawings. Tree pruning shall not involve the removal or harassment of active bird nests.

3.06 TREES OR SHRUBS WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General: Except where trees or shrubs are indicated to be removed, exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits. Do not trim or remove trees unless so approved by the owner of the tree or shrub.
- B. Trimming: Trimming or pruning of trees shall be performed by a licensed and insured arborist. Symmetry of the tree shall be preserved; no stubs or split or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. Cuts over 1-1/2 inches in diameter shall be coated with a tree paint product that is waterproof, adhesive, and elastic, and free from kerosene, coal tar, creosote, or other material injurious to the life of the tree.
- C. Replacement: Immediately notify the Owner if any tree or shrub is damaged by the Contractor's operations so that the Owner may notify the tree or shrub's owner. Replace the tree or shrub if, in the opinion of the tree or shrub's owner, the damage is such that replacement is necessary. The replacement tree or shrub shall be of a like size and variety as the one damaged.

3.07 LAWN AREAS

- A. Lawn or landscaped areas damaged during construction shall be repaired to match the pre-construction condition to the satisfaction of the Owner.

END OF SECTION

SECTION 01 52 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: barriers, enclosures and fencing, protection of the Work, water control, dust control, snow removal, and erosion and sediment control.
- C. Construction Facilities: access roads, parking, progress cleaning, project signage, and field offices.

1.02 TEMPORARY ELECTRICITY

- A. Connect to existing power service, if available. Power consumption shall not disrupt Owner's need for continuous service.
- B. Coordinate with Holy Cross Energy and provide temporary electrical service at the site. Power consumption shall not disrupt Owner's need for continuous service.
- C. Owner will pay cost of energy used. Exercise measures to conserve energy.
- D. Provide power outlets and flexible power cords as required.
- E. Provide main service disconnect and overcurrent protection at convenient location.
- F. Permanent convenience receptacles may be utilized during construction.

1.03 TEMPORARY LIGHTING

- A. Provide and maintain lighting for construction operations.
- B. Provide and maintain lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain lighting to interior work areas after dark for security purposes.
- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

Maintain lighting and provide routine repairs.

1.04 TEMPORARY HEAT

- A. Provide temporary heat devices and heat as required to maintain specified conditions for construction operations.

1.05 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.06 TEMPORARY WATER SERVICE

- A. Provide and maintain for suitable quality water service required for construction operations.
- B. Owner will pay cost of water used. Exercise measures to conserve water.
- C. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.07 TEMPORARY SANITARY FACILITIES

- A. Provide, pay for, and maintain required facilities and enclosures. Existing facilities are not available at the site.

1.08 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide protection for plant life designated to remain. Replace damaged plant life.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.09 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Provide 6-foot high fence around construction site staging area; equip with vehicular and pedestrian gates with locks.

1.10 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. See grading, erosion, and sediment control (GESC) Drawings for additional information and requirements.

1.11 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

1.12 SNOW REMOVAL

- A. Remove snow as required to complete work at Contractors expense.

1.13 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- F. Provide and maintain the grading, erosion, and sediment control (GESC) plan measures to prevent erosion in accordance with Eagle County standards. Contractor shall update and modify the plan as required to complete the work.

1.14 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

- C. Prohibit traffic from landscaped areas.

1.15 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program, if available.

1.16 ACCESS ROADS

- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
- B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.

1.17 PARKING

- A. Arrange for temporary surface parking areas to accommodate construction personnel.
- B. When site space is not adequate, provide additional off-site parking.
- C. See Section 01 11 0 – Summary of Work, Article 1.05

1.18 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.19 FIELD OFFICES

- A. General:
 - 1. A field office is not required for this project. Contractor may choose to establish a field office for their convenience and at their expense.

1.20 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.21 VIDEO RECORDING EQUIPMENT

- A. Prior to starting work on the project, the Contractor shall walk the site with the Owner and private land owner to determine the condition of the existing features such as fences, pavement, curbs, walks, drives, sprinklers, ditches, signs, landscaping, trees and shrubs, and any other existing items to remain on both public and private property.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

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SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Products
- B. Transportation and handling
- C. Storage and protection

1.02 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

1.03 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01 72 00

START-UP, DEMONSTRATION, AND INSTRUCTION OF SYSTEMS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Start-up and Training
- B. Demonstration

1.02 REFERENCE

- A. Section 01 33 00 - Submittals
- B. Section 01 45 00 - Quality Control

1.03 DEFINITIONS

- A. Start-Up and Training Period: The period of time after initial installation/construction during which the Contractor and manufacturer's agents verify installation requirements, test systems, provide Owner with training, initially operate, calibrate and adjust systems to the extent possible without initiating process flow through the facility.
- B. Demonstration Period: A specified consecutive period of time immediately following the start-up and training period. The Contractor initiates process flow through the facility and operates the system.
- C. System: Arrangement of items of equipment, components, piping, wiring, instrumentation, materials, or incidentals so related or connected to form a functional and operational unit.

1.04 SUBMITTALS

- A. Submit details of the procedures for start-up and demonstration of all equipment to be operated singly and together, including such procedures that have been delineated in the individual specification sections.
- B. Forms verifying completion of all start-up and testing activities including receipt of all specified items from manufacturer prior to initiation of demonstration period.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 EXECUTION

A. Start-up and Training

1. The amount of time required for start-up and training on each item of equipment and system is that specified in individual sections.
2. Properly connect, align, calibrate, and adjust all system components. Check out procedures include but are not necessarily limited to:
 - a. Ring out of all power, control and monitoring circuits prior to connection
 - b. Voltage check of all circuits
 - c. Phase sequence check
 - d. Connecting piping system cleanliness check
 - e. Alignment check of all connected machinery
 - f. Pressure and vacuum testing of all closed systems
 - g. Check of lubrication
 - h. Calibration of all safety equipment
 - i. Manual rotation/movement of moving parts to assure freedom of movement
 - j. "Bump starting" of electric motors to verify proper rotation
 - k. Check of valving orientation and position status for manual operating mode
 - l. Clean water testing of tankage for integrity
 - m. Checkout of pumping equipment through clean water testing
 - n. Verify proper instrumentation and control signal generation, transmission, reception and response
3. Owner shall witness Contractor operation of each system to verify functional integrity.
4. Complete all training as the last item of start-up and training period.
 - a. Training on individual systems will not be considered as meeting the Contract requirements unless:
 - 1) During training, no system malfunctions occur.
 - 2) All provisions of field/classroom training specifications are met.
 - b. Training not in compliance with the above will be performed again in its entirety by the manufacturer at not additional cost to the Owner.
5. Field and classroom training requirements
 - a. All equipment shall have installation checks, testing, and adjustment completed prior to classroom training.
 - b. Classroom training will be held on-site.
 - c. The Contractor shall notify each manufacturer specified for on-site training that the Owner reserves the right to video tape record any or all training sessions. Each training session shall be organized in a format compatible with video recording.
 - d. Training instructors shall be qualified, factory trained, and familiar with giving both classroom and "hands-on" instructions.
 - e. Manufacturer's representatives shall be at classes on time. Session beginning and ending times to be coordinated with the Owner. Normal time lengths for class periods can vary, but short rest breaks should be allowed.
 - f. Divide training sessions into maintenance verses operation topics.

- g. The Contractor/manufacturer's representatives shall plan for minimum class attendance of 6 people at each session and shall have sufficient classroom materials, samples, and handouts for those in attendance.
- h. Instructors are to have a typed agenda and well prepared instructional material. The use of visual aids such as films, pictures, and slides is recommended during the classroom training programs. Equipment required for presentation of films, slides, and other visual aids shall be provided by the Contractor.
- i. The on-site training sessions shall cover the information required in the Operation and Maintenance manuals including:
 - 1) Operation of equipment
 - 2) Lubrication of equipment
 - 3) Maintenance and repair of equipment
 - 4) Troubleshooting of equipment
 - 5) Preventive maintenance procedures
 - 6) Adjustments to equipment
 - 7) Inventory of spare parts
 - 8) Optimizing equipment performance
 - 9) Capabilities
 - 10) Operational Safety
 - 11) Emergency situation response
 - 12) Takedown procedures (disassembly/assembly)

B. Demonstration Period

1. The time required to demonstrate operation and performance of each item of equipment and each system is presented in the following table. During the demonstration period, full operation shall be achieved without interruption of equipment or system or need of adjustment or repair. Interruption of equipment or system or need for adjustment or repair shall result in recommencing demonstration period at zero elapsed time. The Contractor shall furnish all operational labor, utilities, and expendables during the start-up and training, and demonstration periods.

SYSTEM	DEMONSTRATION PERIOD
<i>SCADA</i>	<i>24 hours</i>
<i>Site Electrical</i>	<i>24 hours</i>

2. After successful completion of the startup and training, and demonstration periods, the Owner will furnish all operational labor, utilities, chemicals, expendables and cost of normal wear for the equipment or system or direct shut down and protection of the system until total project acceptance. All systems and equipment shall be clean at the completion of their startup and training, and demonstration periods.
3. Document demonstration period activities on the following form:

RECORD OF ACTIVITIES

[illegible]

3.02 LIST OF FORMS

- A. Field Switch Calibration Test Data Form
- B. Transmitter Calibration Test Data Form
- C. Miscellaneous Instrument Calibration Test Data Form

END OF SECTION

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A. FIELD SWITCH CALIBRATION TEST DATA FORM:

Tag No. and Description: _____

Make and Model No.: _____ Serial No.: _____

Input: _____

Scale: _____ Range: _____

Set Point(s): _____

Simulate process variable (flow, pressure, temperature, etc.) and set desired set points(s). Run through entire range of switch and calculate deadband.

Set Point	Incr. Input Decr. Input	Calc. Trip Point	Required Deadband	Deadband
	Trip Point			

CERTIFIED _____

Contractor's Representative

Date _____

WITNESSED _____

Owner's Representative

Date _____

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B. TRANSMITTER CALIBRATION TEST DATA FORM:

Tag No. and Description: _____

Make and Model No.: _____ Serial No.: _____

Input: _____ Chart: _____

Scale: _____ Range: _____

Simulate process variable (flow pressure, temperature, etc.) and measure output with appropriate meter.

% of Range	Expected Input	Actual Reading	Reading	% Deviation
0				
50				
100				

% Deviation Allowed: _____

CERTIFIED _____
Contractor's Representative

Date _____

WITNESSED _____
Owner's Representative

Date _____

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C. MISCELLANEOUS INSTRUMENT CALIBRATION TEST DATA FORM:

(For instruments not covered by any of the preceding test forms, the Contractor shall create a form containing all necessary information and calibration procedures.)

CERTIFIED _____
Contractor's Representative

Date _____

WITNESSED _____
Owner's Representative

Date _____

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SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures
- B. Final Cleaning
- C. Adjusting
- D. Warranties
- E. Spare Parts and Maintenance Materials

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Project Record Documents as specified in Section 01 33 00 Submittals have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide submittals to Engineer and Owner that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.04 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.05 WARRANTIES

- A. Provide electronic copies.
- B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents with electronic file
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.06 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to project site and place in location as directed; obtain receipt prior to final payment.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

END OF SECTION

SECTION 01 78 36

WARRANTIES, GUARANTEES AND BONDS

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies general administrative and procedural requirements for warranties, guaranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1.02 RELATED WORK

- A. Refer to General Conditions for requirements relating to warranties and bonds.
- B. General closeout requirements are included in Section 01 77 00 – Contract Closeout.
- C. Specific requirements for warranties for the work and products and installations that are specified to be warranted are included in the individual Sections.

1.03 SUBMITTALS

- A. Submit written warranties to the Owner prior to the date fixed for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the work, submit written warranties upon request of the Owner.

1.04 WARRANTY REQUIREMENT

- A. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- B. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights, and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
- F. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.

1.05 MANUFACTURERS' CERTIFICATIONS

- A. Where required, the Contractor shall supply evidence, satisfactory to the Engineer, that the Contractor can obtain manufacturers' certifications as to the Contractor's installation of equipment.

1.06 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 02 41 00

DEMOLITION AND SALVAGE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. All demolition, removal, salvage, disposal of existing structures, equipment, piping, electrical and materials.

1.02 SUBMITTALS

- A. Certifications and Testing consistent with Section 01 33 00 Submittals and including:
 - 1. Permits and notices authorizing building demolition.
 - 2. Certificates of severance of utility services.
 - 3. Permit for transport and disposal of debris.
 - 4. Proposed method of demolition, proposed schedule, and proposed method of leaving any facilities operational.
 - 5. Mark any existing damage to structures or equipment to remain. Submit photographs documenting such damage. Undocumented damage discovered following demolition shall be repaired or replaced to the Owner's satisfaction at Contractor's expense.

1.03 SITE CONDITIONS

- A. Protection
 - 1. Erect barriers, fences, guardrails, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.
 - 2. Protect designated trees and plants from damage.
 - 3. Protect portions of existing structures to remain.
 - a. Clearly mark areas where vehicles are not permitted to protect structures. Evaluate capacity of existing slabs to remain to support any proposed vehicles.
 - b. Protect structures and slabs to remain from falling debris.
 - c. Designate debris storage and loading areas well away from existing structures to remain.
- B. Maintaining Traffic
 - 1. Assure minimum interference with roads, streets, driveways, sidewalks, and adjacent facilities.
- C. Utility Lines and Services
 - 1. Keep existing structures to remain and adjacent structures intact and in operation.
 - 2. Obtain permission to disrupt any utilities or services temporarily or permanently.

- D. Prior to demolishing a utility or facility, the Contractor shall notify the Owner three days in advance and shall plan the demolition such that the demolition will not create an unsafe condition or interfere with ongoing operations.
- E. Where demolition must occur in such a sequence that a portion of this facility must remain operational, the Contractor shall coordinate this aspect with the Owner.
- F. Do not burn waste material on-site.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Crates
 - 1. Floors: 4 x 4 No. 2 construction grade lumber
 - 2. Slats: 2 x 4 No. 2 construction grade lumber
 - 3. Polyethylene film: 6 mil, minimum, clear
- B. Storage Oil: Shell VSI No. 33, or equal
- C. Rust-Preventive Compound: Houghton "Rust Veto 344, "Rust-Oleum T-9", or equal

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that areas to be demolished are unoccupied and discontinued in use.
- B. Do not commence work until conditions are acceptable to Owner.

3.02 PREPARATION

- A. Arrange for and verify termination of utility services to include removing meters and capping lines.
- B. Remove items scheduled to be salvaged and place in designated storage area.
- C. Perform tests on existing tank for lead-based paint per Colorado State guidelines. Provide results of test to Owner and Engineer. Do not commence work until test results are acceptable to Owner.

3.03 DEMOLITION

- A. Sprinkle debris and use temporary enclosures as necessary to control dust.
- B. Do not use water to the extent it causes flooding, contaminated runoff, or icing.

- C. Break concrete and masonry into sections less than 3 FT in any dimension.
- D. Repair damage to adjacent structures.
- E. Make neat saw cuts, 1 IN in depth, around areas of concrete to be removed, where remaining concrete is to be incorporated into new work.
- F. Remove existing exposed piping and electrical wiring and conduit to be abandoned from structural surface, cut flush, and finish to match existing surfaces.
- G. Remove buried piping, wiring, and conduit to be abandoned 3 FT outside new structure lines. Plug the remainder flush.
- H. Removal of Existing Structures
 1. Remove roofs, ceilings, walls, joists, electrical, mechanical, furnishings and other appurtenances.
 2. Remove bottom slab and piling.
 3. Fill and compact to 95% of maximum density, structural fill to proposed grade.
 4. Revise portions of existing structures as indicated on Drawings or otherwise specified.
 5. Any demolition occurring over an existing structure to remain, or over a structure containing liquid shall be done in such a manner that any or all items demolished will not fall, causing damage to structure below or into liquid and possibly damaging equipment.
 6. If roof or wall structure is concrete, either dismantle or cut into pieces which are manageable and support such that the removal may be done in an orderly, safe and systematic manner.
 7. In any type of demolition, care shall be taken to see that small items such as bolts, concrete pieces, etc., do not fall and affect any equipment below.
 8. Where the edge of the demolition area is within a concrete structure, the edge shall be carefully saw-cut to leave a neat appearance. The edge shall be coated to protect any exposed reinforcing.
 9. Where cutting of metal pieces embedded in concrete is necessary, the amount of heat applied shall be only as necessary to cut, to minimize damage to existing concrete.
 10. All debris from demolition shall be removed off the site and disposed of in a legal manner. Any material which the Owner may wish to save or reuse shall be stored as per the Owner direction. Entire area shall be made broom clean.
- I. Removal of Existing Equipment
 1. All equipment to be removed or replaced shall be done so in a safe manner and such that the equipment and any associated piping or wiring is not damaged.
 2. All equipment specified for reuse shall be stored as directed by the Owner.
 3. Not specified for reuse, existing equipment becomes property of the Contractor.
 4. Materials and equipment not required for reuse at the site but to be retained by the Owner shall be marked or designated by the Owner.

5. All materials and equipment designated to be retained shall remain the property of the Owner.
- J. Pipe Penetration Demolition
1. For pipes and conduit larger than 12 IN installed through existing walls and slabs, provide demolition of opening as required at locations shown.
 2. For pipe and conduit 12 IN and smaller installed through existing walls and slabs, demolish as required to provide penetration required.
 3. See Section 33 04 01 Openings and Penetrations for penetration requirements.
- K. Electrical Materials and Equipment
1. Existing pad mounted equipment that is scheduled to be removed or relocated during construction shall have its pad removed and any existing conduit removed to 3 FT below finished grade.
 2. Existing electrical materials and equipment, including but not limited to lighting fixture, wiring devices, signal equipment, conduit and wires, and all other electrical items which are rendered obsolete by these alterations and additions, shall be disconnected at source and removed.

3.04 HAZARDOUS MATERIALS

- A. If suspected hazardous materials are encountered during demolition of existing facilities, all work is to be terminated immediately and the Owner is to be immediately notified.

3.05 DISPOSAL

- A. Remove demolition debris daily.
- B. Transport demolition debris to disposal area.

3.06 SALVAGE

- A. Carefully remove items to be salvaged and reused in work or to be delivered to Owner storage.
1. Store and protect items indicated marked by Owner, to be salvaged or to be reused in work.
 2. Replace any items damaged through carelessness in removal, storage, or handling with new items of same type.
 3. Do not reuse materials or equipment not specifically indicated or specified to be reused.
- B. Preparation of Equipment for Storage
1. Identify each component with markings or tags to show its position in the assembly and the assembly of which it belongs.
 2. Place small parts in wooden boxes and clearly mark contents on the outside.
 3. Thoroughly clean and dry equipment.
 4. Remove oil from oil-lubricated bearings and gear boxes and replace with storage oil.

5. Grease grease-lubricated bearings.
6. Coat unpainted surfaces with 2 coats of rust-preventive compound.
7. Replace any breather plug with solid plug.
8. Attach unit to suitable crate bottom.
9. Enclose unit in polyethylene film and seal all seams and the film to the base of the unit with tape.
10. Construct crate of wooden slats around top and sides of unit.

3.07 SALVAGE SCHEDULE

A. The following items shall be salvaged:

1. None

END OF SECTION

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SECTION 03 05 16

PRECAST CONCRETE UTILITY STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes providing and installing precast concrete utility structures, including all required labor, material, and equipment.

1.02 REFERENCES

- A. Work performed and material supplied under this Section shall conform to the requirements of the following specifications, latest edition. Requirements specifically enumerated in this Section or shown on the Drawings supersede the reference specifications. In case of a disagreement between specifications, the more stringent requirements shall govern unless a written clarification is issued.
- B. PCI MNL– 120 – PCI Design Handbook-Precast and Prestressed Concrete
- C. PCI MNL–116 – Manual for Quality Control for Plants and Production of Structural Precast Concrete Products.
- D. ACI 301 – Specifications for Structural Concrete.
- E. ACI 318 – Building Code Requirements for Structural Concrete.
- F. ACI 350 – Environmental Structures: Code Requirements.
- G. ASTM A 48 – Standard Specification for Gray Iron Castings.
- H. ASTM C 857 – Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
- I. ASTM C 858 – Standard Specification for Underground Precast Concrete Utility Structures.
- J. ASTM C 890 – Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
- K. ASTM C 913 – Standard Specification for Precast Concrete Water and Wastewater Structures.
- L. Additional ASTM specifications noted in this Section in reference to specific materials.

M. AWS D1.4 – Structural Welding Code-Reinforcing Steel.

N. CRSI – Manual of Standard Practice

1.03 QUALITY ASSURANCE

A. Structural Performance: Engineer, fabricate, and install precast utility structures to withstand design loadings. Such loading may include, but are not limited to:

1. Loadings indicated on drawings.
2. Loadings indicated in this Specification.
3. Loadings in accordance with ASTM C 857.
4. Loadings in accordance with ASTM C 890.
5. Loads applied during leak testing.
6. Transportation, erection, and installation loads.

B. Fabricator Qualifications: Engage a firm experienced in producing precast concrete utility structures similar to those indicated for this project and with a record of successful in-service performance as well as sufficient production capacity to produce required units without delaying the work.

C. Engineering Responsibility: Engage a fabricator who assumes undivided responsibility for engineering precast concrete utility structures by employing a qualified professional engineer to prepare design calculations, shop drawings, and other structural data.

1. Professional Engineer Qualifications: A professional engineer licensed in the State of Colorado and experienced in providing engineering services that have resulted in fabrication and successful in-service performance of precast concrete utility structures similar to this project.

D. Installer Qualifications: Engage an experienced installer who has completed precast concrete utility structure work similar in design and extent to that indicated for this project and with a record of successful in-service performance.

1.04 SUBMITTALS

A. Shop Drawings:

1. All shop drawings shall be original drawings and shall not be reproductions of the contract documents.
2. Indicate layout, dimensions, thicknesses, and required field assembly for each precast utility structure. Detail loose, cast-in, and field hardware, inserts, connections, joints, and lift points. Detail accessories and construction at openings.
3. Submit detailed drawings for fabrication, bending, and placement of concrete reinforcement indicating size, dimension, bending, placing, and construction joint details. Include all accessories specified and required to support reinforcement.
4. Indicate locations and details of anchorage devices that are to be embedded in other construction. Furnish templates, if required, for accurate placement.

- B. Calculations: Submit design calculations for precast utility structures sealed and signed by the qualified professional engineer responsible for their preparation. Clearly indicate design loadings, spans, material strengths, and any assumptions made.
- C. Design mixes for each concrete mix. Submit revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- D. Material test reports from a qualified independent agency showing compliance with requirements of the following, based on comprehensive testing:
 - 1. Concrete materials.
 - 2. Reinforcing materials.
 - 3. Prestressing strands.
 - 4. Admixtures.
 - 5. Material certificates in lieu of agency test reports, when permitted by Engineer, signed by fabricator certifying that each material item complies with requirements.
- E. Product data for accessories, manhole lids and frames, access hatches, ladder rungs, etc.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver precast concrete utility structures to project site in such quantities and at such times to ensure continuity of installation. Store units at project site to prevent cracking, distorting, staining, or other physical damage, and so that markings are visible.
- B. Lift and support units only at designated lifting or supporting points as shown on final shop drawings.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE UTILITY STRUCTURES

- A. General:
 - 1. Cast-in openings larger than 10 inches according to final shop drawings. Smaller holes may be field cut by trades requiring them, as acceptable to Engineer and Fabricator.
 - 2. For interior concrete surfaces, where legs of supports for reinforcement are in contact with forms, provide supports with legs that are protected with plastic (CRSI, Class 1).
 - 3. Identify pickup points for precast concrete utility structures with permanent markings, complying with markings indicated on final shop drawings. Imprint casting date on each precast structure.
 - 4. Formed surfaces of precast concrete structures shall have a normal plant-run finish produced in forms that impart a smooth finish to concrete. Small surface holes

- caused by air bubbles, normal color variations, and form joint marks, and minor chips and spalls will be tolerated. Major or unsightly imperfections, leaks, honeycombs, or structural defects are not permitted.
5. Finish unformed surfaces to a smooth float finish, where untopped, or to a roughened (raked) finish where concrete topping will be placed.
 6. Defective Work: Precast concrete utility structures that do not conform to requirements, including strength, manufacturing tolerances, and finishes, are unacceptable. Replace with precast concrete units that meet requirements.
- B. Provide non-liquid containing precast concrete utility structures in accordance with ASTM C 857 and the following additional requirements:
1. Design loads:
 - a. HS-20 vehicle load over structure.
 - b. Groundwater shall be assumed to be at grade.
 - c. Buoyancy calculations shall assume structure is empty.
 - d. Soil density = 120 pcf.
 - e. Soil internal friction angle $\phi = 28^\circ$
 2. Materials:
 - a. Minimum concrete thickness to be 5 IN.
 - b. Cement to be Type II.
 - c. Minimum 28-day concrete strength to be 4,000 psi.
 - d. Maximum w/c ratio to be 0.45.
 - e. Concrete entrained air content to be 4.5% to 7.5%.

2.02 STRUCTURE COMPONENTS

- A. Acceptable manufacturers: Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Manhole steps, rings, covers and frames:
 - a. Neenah Foundry
 - b. Deeter Foundry
 - c. J Mark Corporation
 - d. Municipal Castings
 - e. Castings, Inc.
 2. Premolded Joint Compound
 - a. Ram Nec
 - b. Kent Seal
- B. Frames and Cover
1. Provide cast or ductile iron frame and covers made of material meeting ASTM A 48, Class 35 (minimum).
 2. Use only cast or ductile iron of best quality, free from imperfections and blow holes.
 3. Furnish frame and cover of heavy-duty construction, with a minimum total weight of 400 pounds.
 4. Machine all horizontal surfaces.

5. Furnish unit with solid non-ventilated lid with concealed pickholes. Coordinate the cover lettering with the owner.
 6. Ensure minimum clear openings of 24-inch diameter and 30-inch diameter as shown on plans.
 7. Buried manholes: Neenah R1915 series or equal, bolted lid with neoprene gasket. Place layer of 8-mil polyethylene over manhole cover prior to backfill.
 8. Exposed manholes: Neenah R1915 series or equal, bolted lid with neoprene gasket. Provide anchor bolt holes and anchor rods.
- C. Manhole Steps
1. Provide plastic or plastic-coated steel manhole steps where indicated with a safety tread. Spacing and dimensions of steps shall comply with OSHA requirements.
 2. Ensure maximum distance from surface to first rung is not greater than 16 inches and that maximum spacing on remaining steps is 12 inches on center. Locate steps such that center of rungs is nominal 6 inches clear of wall.
 3. Minimum step width of 13 inches.
 4. Install in conformance with manufacturer's recommendations.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine subgrade and conditions for compliance with requirements, including installation tolerances, bearing surfaces, and other conditions affecting performance of precast concrete utility structures. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Set at such elevation that pipe sections built into wall of structure (if applicable) will be true extensions of the line of the pipe.
- B. Separate sections of precast utility structure shall be set with pre-molded joint compound.
- C. Set and adjust frame and cover to match finished pavement grade elevation. In unpaved areas, the top of the frame shall be elevated 6-inches above finished grade.

3.03 CLEANING AND CHIP REPAIR

- A. Clean exposed surfaces of precast concrete utility structures after erection to remove unsightly markings, dirt, and stains.
- B. Repair minor chips in concrete using a repair mortar provided by the manufacturer. Finish repairs to match adjacent surfaces.

- C. Do not repair major chips or cracks without specific written authorization of the Engineer and the Fabricator.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work of this section consists of furnishing and placing concrete, including formwork, reinforcement, finishing, curing, and all related work. The work also includes required materials testing, and leak testing.

1.02 REFERENCES

- A. Work performed and material supplied under this Section shall conform to the requirements of the following specifications, latest edition. Requirements specifically enumerated in this Section or shown on the Drawings supersede the reference specifications. In case of the disagreement between specifications, the more stringent requirements shall govern unless a written clarification is issued.
- B. ACI 117 – Standard Specification for Tolerances for Concrete Construction and Materials.
- C. ACI 301 – Specifications for Structural Concrete.
- D. ACI 305.1 – Specification for Hot Weather Concreting.
- E. ACI 306.1 – Standard Specification for Cold Weather Concreting.
- F. ACI 308.1 – Standard Specifications for Curing Concrete.
- G. ACI 315 – Details and Detailing of Concrete Reinforcement.
- H. ACI 318 – Building Code Requirements for Structural Concrete.
- I. ACI 350 – Code Requirements for Environmental Engineering Concrete Structures.
- J. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel for Concrete Reinforcement.
- K. ASTM C33 – Standard Specification for Concrete Aggregates.
- L. ASTM C42 – Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- M. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

- N. ASTM C150 – Standard Specification for Portland Cement.
- O. ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.
- P. ASTM C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- Q. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
- R. ASTM C618 – Standard Specification for Coal Fly Ash and Raw or Calcinated Natural Pozzolan for Use in Concrete.
- S. ASTM D4397 – Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
- T. CRSI – Manual of Standard Practice.

1.03 QUALITY ASSURANCE

- A. Concrete Mix Design: Proportion the concrete mix to produce an average compressive strength in excess of the specified compressive strength per the requirements of ACI 301.
- B. Testing
 - 1. General:
 - a. Testing Service: The Contractor will employ and pay for a qualified independent laboratory to perform testing of concrete. Contractor will coordinate scheduling, and provide necessary means to assure cooperation with testing firm. Work and/or materials which are defective shall be repaired and re-tested at the Contractor's expense.
 - b. Samples shall be taken after discharge of approximately 15 percent of the load.
 - c. Concrete shall not be placed until slump, air content, and temperature tests are completed and results are within specified tolerances.
 - d. When concrete is pumped, samples for air content tests shall be taken at the point of placement.
 - 1. At the Contractor's option and expense, a course of testing may be undertaken to establish a correlation between the air content at the point of placement and the air content as delivered by the truck. Such correlation testing shall include the simultaneous testing of air content at the truck and point of placement. No fewer than three tests for each of two boom configurations (boom extended nearly horizontal and boom in a high "A" configuration) will be required for each proposed mix design.
 - 2. Results of the testing shall be submitted for review. If, in the Engineer's opinion, an adequate correlation has not been

established, the Engineer may require further correlation tests or that air content tests continue to be taken at the point of placement.

- e. Sampling, test methods, and reporting shall conform to the requirements of ASTM C94.
- 2. Frequency
 - a. Slump Tests: Tests shall be performed on every truckload.
 - b. Air Content, Temperature, and Unit Weight:
 - 1. Tests shall be performed on the first three truckloads of concrete each day or for each major placement. If any of the results are out of the specified tolerance, testing shall continue on each truckload until a minimum of three consecutive loads meet the specified requirements.
 - 2. Once three consecutive truckloads have produced acceptable results, testing shall be performed at the same interval as compression tests.
 - 3. Additional Air Content, Temperature, and Unit Weight tests shall be required on every load for which slump test results were out of specified range.
 - 4. Should any Air Content or Temperature test fail to meet the requirements, testing of every truckload shall resume until three consecutive loads meet the specified requirements.
 - c. Compression Tests:
 - 1. Test specimens shall be made using standard 6 IN diameter by 12 IN high cylinders. Five cylinders shall be obtained for every 50 cubic yards of concrete placed or for each major placement during the day, whichever is more frequent. Two cylinder will be tested at an age of 7 days for information, two at an age of 28 days for acceptance, and one held in reserve to be tested if required.
 - 2. Additional cylinders may be made, laboratory or field cured, and tested at the Contractor's expense for purposes such as estimating in-place concrete strength prior to backfilling or removing forms.
- C. Enforcement of Strength Requirements: If the 28-day strength test fails to meet the requirements, the Engineer may require that core samples be taken and tested in accordance with ASTM C42, at Contractor's expense. If the core tests are below strength, if there is evidence of damage by freezing, or if the concrete fails to meet specifications in other ways, the Engineer may require that the defective concrete be removed and replaced at no additional expense to the Owner.
- D. The Contractor is responsible for quality control, including workmanship and materials furnished by his subcontractors and suppliers.
 - 1. Inspection or testing does not relieve the Contractor of his responsibility to perform the Work in accordance with the Contract Documents.
 - 2. Workmanship: The Contractor is responsible for and shall bear the cost of correcting concrete work which does not conform to the specified requirements including, but not limited to, strength, tolerances, joint types and patterns, and

finishes. Correct deficient concrete by means acceptable to the Engineer. The cost of extra work incurred to approve corrective work shall be borne by the Contractor.

- E. Record of Work: A record shall be kept by the General Contractor listing the time and date of placement of all concrete for the structure. Record shall include truck batch tickets indicating quantities of constituent materials for concrete, water/cementitious material ratio, and quantities of any water or admixtures added after batching. Such record shall be kept until the completion of the project and shall be available to the Engineer for examination at any time.

1.04 SUBMITTALS

- A. Shop Drawings:
1. All shop drawings shall be original drawings and shall not be reproductions of the contract documents.
 2. Submit detailed drawings for fabrication, bending, and placement of concrete reinforcement indicating size, dimension, bending, placing, and construction joint details. Include all accessories specified and required to support reinforcement. Comply with ACI Detailing Manual SP 66.
- B. Product Data:
1. Submit data for proprietary materials and items, including admixtures, patching compounds, joint systems, curing compounds, sealants, and others as requested by the Engineer.
- C. Certificates and Reports:
1. Concrete Mix Design: Comply with ASTM C 94; furnish statement of composition of concrete mix and evidence that mix will meet quality specified herein, including cement content; entrained air content, design slump and unit weight.
 2. Compressive Test Results in support of concrete mix design. Such tests shall be performed with specimens prepared with the highest water/cementitious material ratio which will be used in the structure.
 3. Admixtures: Submit admixture types and manufacturers with a written statement showing chloride content if any chloride was added during manufacture.
 4. Submit results of concrete slump, air content, and compressive strength tests.
- D. Procedures:
1. Submit proposed curing procedures.
 2. Submit proposed test procedures for any air content correlation test undertaken for pumped concrete. Submit results of correlation tests.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Materials handling and batching shall conform to applicable provisions of ASTM C94.

- B. Reinforcing: Unload and store reinforcing bars so they will be kept free of mud and damage.
- C. Extra Water:
 - 1. Deliver concrete to site in exact quantities required by design mix.
 - 2. If concrete is delivered with a water/cementitious material ratio below that of the tested and approved mix design, truck batch tickets shall indicate the maximum additional water permitted.
 - 3. Should extra water be required for workability before depositing concrete, General Contractor's superintendent shall have sole authority to authorize addition of water. Such additional water shall not exceed that indicated on the truck batch tickets, nor cause the water/cementitious material ratio of the tested and approved mix design to be exceeded. Any additional water added to mix after leaving batch plant shall be indicated on truck ticket and signed by person responsible.
 - 4. Where extra water is added to concrete it shall be mixed thoroughly for 50 revolutions of drum before depositing.
 - 5. Water may be added to the site only once for each batch.
 - 6. An additional slump and air content test shall be performed following the addition of any water.
- D. Redosage with High Range Water Reducing Mixture (Superplasticizer): May be done with prior acceptance of Engineer regarding dosage and time periods.

1.06 JOB CONDITIONS

- A. Environmental Requirements:
 - 1. Cold Weather Placement:
 - a. When for three successive days prior to concrete placement the average daily outdoor temperature drops below 40° F or when the average outdoor temperature is expected to drop below 40° F on the day of concrete placement, preparation, protection and curing of concrete shall comply with ACI 306.1.
 - b. Concrete temperature at time of placement shall conform to minimum values of ACI 306.1, and shall not exceed minimum values by more than 20° F.
 - c. Subject to acceptance of Engineer, an accelerating admixture may be used. Admixtures shall meet requirements of Part 2. Calcium Chloride and other chloride-type accelerating admixtures will not be allowed.
 - d. Comply with concrete protection temperature requirements of ACI 306.1. Record concrete temperatures during specified protection period at intervals not to exceed 16 hours and not less than twice during any 24 hour period.
 - e. Submit detailed procedures, means, and methods, for production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather.
 - 2. Hot Weather Placement:
 - a. Temperature of concrete at time of placement shall not exceed 85° F.

- b. When air temperatures on day of placement are expected to exceed 90° F, mix ingredients shall be cooled before mixing. Flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for all or part of mix water.
- c. Retarding admixture may be used subject to acceptance of Engineer. Admixtures shall meet requirements of Part 2.
- d. Protect concrete to prevent rapid drying. Start finishing and curing as soon as possible.
- e. Limit mixing and transportation time as indicated in Part 2.

B. Protection: Protect newly finished slabs from rain damage.

PART 2 – PRODUCTS

2.01 FORMWORK

- A. Contractor shall be responsible for design, strength, and safety of formwork. Formwork shall be designed to withstand vibrator action. Design, strength, spans, details, etc. of forms, shall be the Contractor's responsibility, and shall be in full conformance with the form manufacturer's recommendations.
- B. Formside Materials:
 - 1. Concrete exposed to view shall have smooth form finish. Use metal or plastic lined panels or overlay plywood complying with PS 1, A-C or B-B High Density Overlaid Concrete Form, Class I, which will produce a smooth, hard, uniform texture on the concrete. Do not use materials with raised grain, torn surfaces, worn edges, patches, dents, or other defects that will impair the surface of the concrete. Furnish panels in largest practical sizes to minimize number of joints and to conform to joint system shown. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.
 - 2. Forms for Unexposed Finished Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
 - 3. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
 - 4. Inspection shall occur prior to placing concrete. Forms shall be inspected for cleanliness, accuracy of alignment, and reinforcing steel clearances.
- C. Form Ties: Snap-off metal, of required length, 1 IN diameter cone ends at exposed concrete. Form ties shall be constructed so that no metal remains within 1-1/2 IN of the surface of the wall after removal of formwork. The assembly should provide cone-shaped depression at the surface to allow proper filling and patching.
- D. Fillets for Chamfered Corners: Wood strips or rigid plastic type; size as detailed; maximum practical lengths.

- E. Slab Control Joint Forms: Molded plastic material for insertion into slab surface during finishing. Configuration to provide joint depth of not less than 1/4th of the slab thickness.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. "Zipcap" - Greenstreak Plastic Products Co.
 - b. "Stresscap" - Vinylex Corp.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615 grade 60 deformed bars, uncoated finish unless noted otherwise on the Drawings.
- B. Tie Wire: Minimum 16 gage annealed type.
- C. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete. Wood, brick or other unacceptable material is not permitted.
- D. Chairs, Bolsters, Bar Supports, Spacers at Architectural Concrete Surfaces, Concrete Which Will Be Exposed to View: CRSI Class 1 (plastic coated) or Class 2 (stainless steel); sized and shaped as required.

2.03 CONCRETE

- A. General Requirements:
 - 1. Portland Cement:
 - a. ASTM C150, Type II. Use cement containing not more than 0.60 percent alkalis (calculated as the percentage of sodium oxide plus 0.658 times the percentage of potassium oxide) in concrete with aggregate that may be deleteriously reactive.
 - b. Use one brand of cement throughout project unless approved otherwise.
 - 2. Fly ash will be allowed as a cementitious component of the mix. Fly ash shall conform to ASTM C618 Class C or F. Fly ash shall not exceed 25% of total cementitious material by weight.
 - 3. Aggregate: ASTM C33. Obtain from same source throughout project.
 - a. Fine Aggregate: Natural sand.
 - b. Coarse Aggregate: Gravel or crushed stone containing no deleterious substances.
 - c. Maximum size of coarse aggregate shall be 3/4 IN
 - 4. Water: Clean and not detrimental to concrete.
- B. Ready-Mix Concrete:
 - 1. Materials: Materials, including cement, aggregates, water, and admixtures, shall meet the requirements of ASTM C94, subject to the additional requirements of this section.

2. Quality of Concrete: Concrete shall be furnished under Option C, ASTM C94, whereby the manufacturer assumes full responsibility for the selection of the proportions for the concrete mixture, with the minimum allowable cement content specified. Submit statement of composition as specified in Part 1 of this section.
3. Required Strength: 4500 psi at 28 days.
4. Cementitious Material Content: Minimum of 564 pounds per cubic yard.
5. Air Content:
 - a. 6 % $\pm$ 1 1/2 %, measured at discharge from truck.
 - b. 6% $\pm$ 2%, measured at point of placement.
6. Slump: Shall not exceed 4 IN, 6 IN maximum with superplasticizer; with tolerances as specified in ASTM C94.
7. Maximum water/cementitious material ratio: 0.45.
 - a. Water/cementitious material ratio of concrete placed in structure shall not exceed the water/cementitious material ratio of tested and approved mix design.
8. Manufacture and Delivery:
 - a. Measurement of materials, batching, mixing, transporting, and delivery shall be as specified in ASTM C 94.
 - b. Hauling Time: Discharge all concrete transmitted in a truck mixer, agitator, or other transportation device not later than 1-1/2 hours, or 300 revolutions of the drum after the mixing water has been added, whichever is earliest. In hot weather, limit mixing time to 45 minutes or 125 revolutions of the drum. If the manufacturer cannot meet these requirements, then the water shall be introduced into the mix at the project site.

2.04 ADMIXTURES

- A. General: Unless specified, no admixtures may be used without specific approval of the Engineer.
- B. Prohibited Products: Calcium chloride or admixtures containing more than 0.05% chloride ions or thiocyanates are not permitted.
- C. Air-Entraining Admixture: ASTM C260.
 1. Subject to compliance with requirements, provide one of the following:
 - a. "Air Mix" - Euclid Chemical Co.
 - b. "Daravair AT60" - Grace Construction Products
 - c. "Micro-Air" - BASF
 - d. "Sika Air" - Sika
 2. Interior trowel finished slabs shall not contain air entraining admixtures.
- D. Water Reducing Admixture: ASTM C494, Type A.
 1. Subject to compliance with requirements, provide one of the following:
 - a. "Eucon WR" - Euclid Chemical Co.
 - b. "Pozzolith 322 N" - BASF
 - c. "Plastocrete 161" - Sika

- E. High Range Water Reducing Admixture (Superplasticizer): ASTM C494, Type F or G.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. "Eucon 537" - Euclid Chemical Co.
 - b. "Glenium 3030 NS" - BASF
 - c. "ViscoCrete 2100" - Sika
- F. Non-Corrosive, Non-Chloride Accelerator: ASTM C494, Type C or E. The admixture manufacturer must have long-term, non-corrosive test data (of at least a year's duration) using an acceptable accelerated corrosion test method such as electrical potential measurements.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. "Accelguard 80" - Euclid Chemical Co.
 - b. "Pozzolith NC534" - BASF
 - c. "Plastocrete 161FL" - Sika
- G. Retarding Admixture: ASTM C494, Type D.
 - 1. Subject to compliance with requirements, use one of the following:
 - a. "Eucon Retarder 75" - Euclid Chemical Co.
 - b. "Daratard 17" - W. R. Grace Co.
 - c. "Pozzolith 122R" - BASF
 - d. "Plastiment" - Sika
- H. Use of admixtures will not relax cold weather placement requirements.

2.05 PATCHING GROUT

- A. SikaTop 123 Plus, Manufactured by Sika Corporation, 875 Valley Brooks Avenue, Lyndhurst, NJ 07071, Ph (201) 933-8800, or approved equal.

2.06 NONSHRINK GROUT

- A. Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing a minimum compressive strength of 8,000 psi in 28 days.
 - 1. Subject to compliance with requirements, use one of the following:
 - a. "Five Star Grout" - Five Star Products
 - b. "Sikagrout 328" - Sika
 - c. "Masterflow 928" - BASF

2.07 SLEEVES

- A. Unless noted otherwise on the drawings, sleeves shall consist of schedule 40 pipe, two pipe sizes larger than carrier pipe, hot dipped galvanized after fabrication.

2.08 OTHER EMBEDDED ITEMS

- A. Items encased in concrete shall not be painted.

2.09 BONDING AGENT

- A. Epoxy bonding agent.
 - 1. Epoxy bonding agents may be used in any approved location.
 - 2. Subject to compliance with requirements, use one of the following:
 - a. "Sikadur 32" - Sika
 - b. "Sika Armathec 110 EpoCem" - Sika
 - c. "Resi-Bond (J-58)" - Dayton Superior
 - d. "Concresive LPL" - BASF Building Systems
- B. Acrylic latex bonding agent.
 - 1. Acrylic latex bonding agents shall not be used in areas below water lines or subject to frequent immersion. They may be used in approved locations subject to intermittent wetting.
 - 2. Subject to compliance with requirements, use one of the following:
 - a. "Day-Chem Ad Bond (J-40)" - Dayton Superior
 - b. "Acrylbond" - Cemix Construction Products
- C. Polyvinyl acetate bonding agent.
 - 1. Polyvinyl acetate bonding agents shall be used only in approved dry locations.
 - 2. Subject to compliance with requirements, use one of the following:
 - a. "Superior Concrete Bonder (J-41)" - Dayton Superior
 - b. "EUCO Weld" - Euclid Chemical Company

2.10 CURING MATERIALS

- A. Curing compound or material shall be compatible with required finishes and/or coatings.
- B. Sheet Materials: ASTM D 4397, 4-mil polyethylene film or waterproof paper.
- C. Spray Applied Membrane Forming Liquids (applied in accordance with ACI 301):
 - 1. Subject to compliance with requirements, use one of the following:
 - a. "Kure-N-Seal" - BASF
 - b. "Safe Cure & Seal (J-18)" - Dayton Superior
- D. Moisture cure surfaces where curing compound or material are incompatible with required finishes and/or coating.
- E. Water: Clean and not detrimental to concrete.

2.11 ANCHORING SYSTEMS

- A. Anchor Bolts: ASTM F 1554 Grade 36, unless otherwise indicated.
- B. Adhesive Anchors: "HIT HY 200" Injection Adhesive Anchor - Hilti Fastening Systems or approved equal.

PART 3 – EXECUTION

3.01 FORMWORK

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are correct size, shape, alignment, elevation and position. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- B. Arrange formwork construction to allow for proper sequencing and removal without damage. Use orderly and symmetrical panel arrangement with minimum number of joints. Mount panels on rigid supports to minimize deflection. Before proceeding, secure approval of formwork and procedures.
- C. Forms:
 - 1. Sufficiently tight to prevent loss of mortar.
 - 2. Seal wood with coating material to minimize absorption of moisture from the concrete.
 - 3. Coat textured forms with release agent and others where required. Application shall be made prior to reinforcement placement.
 - 4. Coat steel forms with a non-staining, rust-preventive form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.
- D. Thoroughly remove all dirt, mortar, ice and foreign matter before each use. Where the bottom of the form is inaccessible from within, access panels shall be provided to permit thorough removal of extraneous material before placing concrete.
- E. Chamfer all exposed horizontal and vertical edges or outer corners 3/4 IN, both interior and exterior of structures, except where other construction contacts the concrete.
- F. Where tolerances are not stated elsewhere in these specifications or drawings for any individual structure or feature, permissible deviations from established lines, grades, and dimensions are listed below:
 - 1. Variation in the sizes and locations of sleeves, floor openings and wall openings: 1/4 IN.
 - 2. Variation of cross-sectional dimensions in the thickness of slabs and walls: Minus, 1/4 IN; plus, 1/2 IN.

3. Variation from established lines and grades in sidewalks, plazas, outdoor concrete slabs, curb and gutter sections: in 10 FT, 1/4 IN; in 1 FT, 1/8 IN.

3.02 SHORES AND SUPPORTS

- A. Contractor shall be fully responsible for the design, construction, and performance of shoring and reshoring.

3.03 REINFORCEMENT

- A. Design: The contract documents show only the general reinforcing requirements and geometry. Design of splice and bend details, bar lengths, etc., are the responsibility of the Contractor and shall be shown on the shop drawings.
- B. Bending: In accordance with CRSI Manual of Standard Practice.
- C. Placement: Place reinforcement accurately as shown. Adequately secure reinforcement in position by concrete or metal chairs and spacers, in accordance with CRSI Manual of Standard Practice. Distance between the steel and the surface, as shown; otherwise, in accordance with the CRSI Manual. In walls, use bolsters or chairs between form and reinforcement to prevent lateral displacement of reinforcement and to ensure proper concrete cover.
- D. Placing bars in fresh concrete as the Work progresses (“stabbing”), and adjusting bars during the placement of concrete shall not be permitted.
- E. Splices:
 1. Bar laps shall be in contact and securely tied.
 2. Locate splices of reinforcement as shown. For any splices not shown, provide splice length as called for on the Drawings or in accordance with ACI 318.
 3. In beams and slabs, all top bars shall be spliced at midspan and all bottom bars shall be spliced at supports.
- F. Reinforcement shall be continuous around corners or corner bars shall be provided.
- G. Bars shall not be field bent unless otherwise approved by the Engineer. Bars shall not be bent or straightened in a manner that will damage the bars. The use of heat to bend or straighten bars shall not be permitted.
- H. Welding of reinforcing bars is not permitted without written permission of the Engineer.
- I. Inspection: After reinforcement has been placed, it shall be inspected prior to placing the concrete.
- J. Condition of Surfaces: At time concrete is placed, all metal reinforcement shall be free from rust, scale, frost, or other coatings that would destroy or reduce the bond.

3.04 JOINTS AND EMBEDDED ITEMS

- A. Construct all joints true to line with faces perpendicular to surface.
- B. Construction Joints: Locate and install construction joints where shown.
 - 1. Obtain approval for joints not shown and locate them where they least impair the strength of the structure. Make joints perpendicular to the main reinforcement.
 - 2. Continue all reinforcing steel across construction joints.
 - 3. Use bonding agent at joints between fresh concrete and existing or fully cured, hardened concrete. By sandblasting, or other approved means, clean surfaces of laitance, coatings, loose particles, and foreign matter. Apply bonding agent in accordance with manufacturer's instructions.
- C. Control Joints:
 - 1. Provide hand tooled, sawcut, or formed control joints for non-structural slabs
 - 2. Depth of control joints shall equal 1/4 of slab thickness unless indicated otherwise.
 - 3. Locate control joint where shown, and in patterns shown on the Drawings.
 - 4. Provide continuous control joints in lightly loaded slabs-on-grade, walks, stoops, aprons, and similar flatwork whether shown or not.
 - a. Joint spacing shall not exceed 15'-0"
 - b. Panels between joints shall be square or rectangular to the extent practicable. In no case shall a panel's length exceed twice its width.
 - 5. Do not place control joints in adequately reinforced slab on grade, mat foundations, suspended slabs, or liquid holding structures unless specifically indicated.
- D. Expansion Joints: Install expansion joint fillers as shown on Drawings. Separate slabs, curbs, manholes, and inlets from vertical surfaces with expansion joint material. Extend full depth of joint. Recess joint filler not less than 1/2 IN, nor more than 1 IN below finished surface where sealants are indicated.
- E. Other Embedded Items, Penetrations, and Blockouts:
 - 1. Before concreting, place all required sleeves, inserts, anchor bolts, and embedded items. Anchor to prevent floatation and displacement.
 - 2. Give all trades whose work is related to the concrete ample notice and opportunity to introduce embedded items before concrete is placed.
 - 3. Position embedded items accurately and support them against displacement. Fill voids in sleeves, and inserts, and anchor slots temporarily with readily removable material to prevent the entry of concrete.

3.05 MIXING

- A. When the concrete is mixed completely in a truck mixer, 70 to 100 revolutions at the mixing speed specified by the manufacturer are required to produce uniformity of the concrete.

3.06 PLACING OF CONCRETE

A. Preparation Before Placing:

1. Remove hardened concrete and foreign materials from inner surfaces of conveying equipment.
2. Check formwork for completion, check position and securement of reinforcement, joint material, sleeves, anchors, and other embedded items, and obtain approval on entire preparation.
3. Remove ice and excess water and sprinkle semiporous subgrades sufficiently to eliminate suction.
4. Do not place concrete on frozen ground.
5. Do not place concrete during rain, sleet, or snow unless protection is provided.

B. Depositing:

1. Place concrete in final position to avoid segregation due to rehandling or flowing.
2. Direct concrete down the center of forms. Use drop chutes where necessary to prevent the stream of concrete from being separated by striking reinforcing or other embedded objects.
3. Spread concrete in horizontal lifts between 6 IN and 20 IN high. Lifts shall be of a height to minimize surface defects and eliminate rock pockets.
4. Place concrete at such a rate that the concrete remains plastic and flows readily into spaces between bars. Do not deposit concrete that has partially hardened or become contaminated by foreign material.
5. Deposit concrete continuously and rapidly enough so that the layer supporting the one being placed is still plastic. If continuous placement is impossible, locate construction joints where shown or as approved.
6. Remove temporary form spreaders when concrete reaches them.
7. Do not begin placing concrete in supported elements until the concrete previously placed in beams and walls has cured a minimum of 1 day.

C. Compacting:

1. Use high frequency vibrators in the placement of concrete forms. When concrete is being placed on hardened concrete or in bottom of forms, exercise care to ensure complete consolidation. After the initial lift, vibrator shall penetrate through and into top of previous lift of concrete.
2. Internal vibrators shall have a minimum frequency of 8,000 rpm. Overvibrating and use of vibrators to transport concrete within forms shall not be allowed. Insert and withdraw vibrators at many points, from 18 to 30 IN apart, for 5 to 15-second duration. Keep a spare vibrator on the project site during all concrete placing operations.
3. Once concreting is started, it shall be carried on as a continuous operation until the placing of the panel or section is completed, preventing fresh concrete from being deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within the section.

4. Remove splashes or accumulations of hardened or partially hardened concrete or mortar on forms or reinforcement above general level of the concrete already in place before the work proceeds.
5. Maintain reinforcement in proper position during concrete placement operations.
6. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surfaces free of lumps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

3.07 FORM REMOVAL

- A. Carefully remove forms to ensure the safety of the structure and avoid damage to concrete.
- B. Non-supporting forms (sides of columns, walls, etc.) may be removed after 24 hours, providing the concrete will not be injured, and curing operations are maintained.

3.08 REPAIRING AND PATCHING

- A. Patch all the tie holes, surface air voids 1 IN or greater in diameter, and all repairable defective areas immediately after form removal.
- B. All honeycombed and other defective concrete shall be removed to sound concrete with edges perpendicular to the surface.
- C. Prepare surface and apply bonding agent in strict accordance with manufacturer's recommendations.
- D. Mix, apply, and cure patching grout in strict accordance with manufacturer's recommendations.

3.09 FINISHES FOR FORMED SURFACES

- A. Unless selection of finish is indicated on the Drawings or other specifications, formed surfaces shall be finished as follows:

<u>Surface</u>	<u>Finish</u>
Exterior side of walls below grade	Rough Form Finish
All other surfaces	Smooth Form Finish

- B. Rough Form Finish: Leave surface with texture imparted by the forms.
- C. Smooth Form Finish: Completely remove all fins. All form marks should be ground flush so that the concrete surface is smooth.
- E. Related Unformed Surfaces: At top of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

- F. Protect concrete from damage until completion of concrete sealing.

3.10 FINISHING FOR SLABS

- A. Screeding: After concrete has been thoroughly consolidated, screed slabs to the desired elevation and contours by means of accurately placed edge forms and intermediate screed strips.
- B. Jointing: Locate and construct control joints as shown or specified. Start cutting saw-cut joints as soon as concrete has hardened sufficiently to prevent dislodgement of aggregates. Complete sawing within 12 hours after placement.

- C. Unless selection of finish is indicated on the Drawings or other specifications, slab surfaces shall be finished as follows:

<u>Surface</u>	<u>Finish</u>
All surfaces	Float Finish

- D. Float Finish:
1. Place, consolidate, strike off, and level concrete, but do not work it further until ready for floating. Begin floating when water sheen has disappeared and when the surface has stiffened sufficiently.
 2. During or after the first floating, check planeness of surface with a 10-foot straightedge applied at not less than two different angles, and then cut down all high spots and fill all low spots to achieve a true plane within 1/4 IN in 10 FT.
 3. Refloat slab immediately to a uniform sandy texture.

3.11 CURING AND PROTECTION

- A. General: Beginning immediately after placement, protect concrete from drying, excessively hot or cold temperatures, and mechanical injury. Keep moisture loss to a minimum until cement has hydrated and concrete is cured.
- B. Curing:
1. Formed Surfaces: Keep forms wet. Cool metal forms exposed to the sun with water. Forms shall remain in place for 7 days unless a curing method as specified below is used.
 2. Duration of Curing: 7 days minimum.
 3. Methods of curing shall be as follows:
 - a. Provide moisture-retaining cover curing as follows: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practical width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - b. Provide water curing as follows: Keep concrete surface continuously wet by covering with water, or continuous water-fog spray. Cover concrete

surface with absorptive cover, thoroughly saturate cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

- c. Provide Liquid Membrane Forming Curing Compound as follows: Apply specified curing and sealing compound to concrete surfaces as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period. Use Liquid Membrane Curing Compound only as approved by the Engineer.
- d. The selected curing method shall be applied to the concrete immediately upon removal of forms.

C. Protection:

- 1. In cold weather, maintain the moisture conditions but also, by heating or covering, maintain temperature of the concrete between 50 degrees F and 70 degrees F for entire curing period.
- 2. In hot weather, take immediate steps to protect newly finished concrete from the drying effects of wind and sun, and maintain temperature of the air surrounding the concrete uniform within 5 degrees F in any one hour or 50 degrees F in any 24-hour period.
- 3. During curing period, protect concrete from mechanical damage, loading, shock, and vibration.

3.12 NONSHRINK GROUT

- A. Use nonshrink grout to fill voids under columns and equipment bases. Grout shall be mixed and used in accordance with manufacturer's recommendations. Exposed edges shall be smooth, straight, and even.

3.13 DAMAGED OR DEFECTIVE CONCRETE

- A. Remove damaged or defective concrete before completion and acceptance of the work and replace with acceptable concrete.

3.14 DIFFERENTIAL SETTLEMENT MONITORING

- A. Contractor shall monitor the water tank concrete foundation for differential settlement. See additional requirements in Section 43 41 12, Article 3.02.C.

END OF SECTION

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SECTION 03 33 01

FLOWABLE FILL

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. The Work specified in this section consists of providing all labor, materials, equipment, supervising, testing and incidentals necessary to furnish and install Flowable Fill as indicated on the Contract Drawings and as specified herein.
- B. Work includes producing a Flowable Fill as Controlled Low Strength Material (CLSM) consisting of Portland cement, fine and coarse aggregate, water, and approved admixtures; proportioned, mixed, transported, placed, and cured as specified.
- C. This specification covers CLSM for void fill to occupy excavation empty spaces, voids and for use as a replacement for compacted backfill.
- D. Specification 03 33 00 – Cast-in-Place Concrete may be utilized for requirements not specifically defined in this specification.

1.02 RELATED SPECIFICATIONS

- A. General Specification 03 33 00 – Cast-In-Place Concrete.

1.03 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 229 Controlled Low Strength Materials
 - 2. ACI SP-150 Controlled Low Strength Materials
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM C 33 Standard Specification for Concrete Aggregates
 - 2. ASTM C 143 Standard Test Method for Slump of Hydraulic-Cement Concrete
 - 3. ASTM C 150 Standard Specification for Portland Cement
 - 4. ASTM C 403 Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
 - 5. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete
 - 6. ASTM C 618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 - 7. ASTM C 940 Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory
 - 8. ASTM D 4832 Standard Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

9. ASTM D 6023 Standard Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM)
10. ASTM D 6024 Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application

1.04 DEFINITIONS

- A. The following items are defined for general use in these specifications:

CLSM – Self-consolidating, self-leveling cementitious material used primarily as a backfill and fill voids. This mixture does not require compaction.

1.05 GENERAL REQUIREMENTS

- A. Furnish and place CLSM in a fluid condition, that sets within the required time and, after curing, obtains the desired strength properties as evidenced by the laboratory testing of the mix design, at locations shown on the plans or as directed by the Engineer.

1.06 SUBMITTALS

- A. General:

1. Review of required submittals shall be by Engineer for acceptance unless specifically noted otherwise.
2. Prior to changing the brand, type, size or source of cementitious materials, aggregates, water, or admixtures, new historical field strength test data, data from new trial mixtures or evidence which indicates that the change will not adversely affect the relevant properties of the CLSM shall be submitted.

- B. Certifications:

1. All materials used in the manufacture of CLSM shall be accompanied by a certificate from the manufacturer or fabricator or supplier indicating test results of current production stockpiles or shipments.
2. Submit certification of conformance to referenced standards when requested by Engineer.

- C. Delivery Tickets:

1. Contractor shall furnish Engineer with a copy of the delivery ticket for each load of CLSM delivered to the site.
2. Provide batch tickets for each batch of job-site mixed CLSM as specified.
3. Submit samples of materials as specified and as otherwise may be requested by the Engineer, including names, sources, and descriptions.

- D. Shop Drawings:

1. Prior to ordering of any CLSM, the Contractor shall submit to the Engineer, for review, a design mix indicating the proposed proportioning of material, together with documentation of certified test results supplied by a qualified independent

testing laboratory for the CLSM verifying that the proportions proposed meet the specified requirements. The design mix submittal shall include, but is not necessarily limited to the following:

- a. Names of all Suppliers and/or Manufacturers.
- b. Distance, in miles, from the Mixing Plant to the Job Site.
- c. Certification of compliance of materials with ASTM Specifications as here in before specified.
- d. Proposed proportioning of materials.
- e. Admixtures required and/or proposed and dosage of each for all temperature ranges proposed.
- f. Sieve analyses for each aggregate size.
- g. Required cylinder test results and curves.
- h. Signed statement that the proposed proportions meet all Specification requirements, including required average compressive strength shall consist of a field strength test record, several strength test records, or trial mixtures.
- i. CLSM placement sequence, including a procedure to account for subsidence during settling and curing process.
- j. Manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures.
- k. Detailed description of conveying equipment.
- l. Detailed description of CLSM placement methods.

1.07 QUALITY ASSURANCE

A. General:

1. Contractor will employ and pay for a testing laboratory experienced in the design and testing of CLSM materials and mixes. This laboratory shall be responsible for all CLSM mix design and trial batch testing. A trial mix shall be performed to verify the CLSM mix design. The trial mix shall also report slump, air content, yield, cement content, and dry unit weight per ASTM C143 and ASTM D6023.
2. The testing laboratory shall sample and test specimens of the CLSM during placement to compare its properties to the specification requirements and verify the spread diameter and unconfined compressive strength of the in-place material.

B. Manufacturer: CLSM shall be manufactured by a ready-mix concrete producer with a minimum of 1-year experience in the production of similar products.

C. Materials: Provide primary materials that are products of one manufacturer for each type of material required for the work. Unless otherwise specified, materials shall comply with recommendations of ACI 229, "Controlled Low Strength Material".

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver and handle all products and equipment required, in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Provide CLSM containing cement and water, at a minimum. At the Contractor's option, and following the approval of the Engineer, the CLSM mix may also contain fine aggregate, fly ash, ground granulated blast furnace slag, or chemical admixtures in any proportions such that the final product meets the strength, flow consistency and shrinkage requirements included in this specification.

2.02 CEMENTITIOUS MATERIALS

- A. Cement:
 - 1. ASTM C 150 - Portland cement, Type I or Type II. Use Portland cement produced by an acceptable, recognized manufacturer. Alternate cement sources may be used provided that a mix design has been accepted by the Engineer and a trial batch has been completed and witnessed by the Engineer to verify performance.
 - 2. Do not use cement which has deteriorated because of improper storage or handling.
- B. Fly Ash:
 - 1. Fly ash shall conform to Class C or Class F in accordance with ASTM C618.
 - 2. Fly ash used in CLSM that contacts potable water shall be certified as meeting the requirements of ANSI/NSF 61.
- C. Ground Granulated Blast Furnace Slag:
 - 1. Ground granulated blast furnace slag (GGBF) mineral admixture, when used, shall meet the requirements of ASTM C 989, Grade 100 or better.
 - 2. A higher percentage of GGBF slag of the total cementitious material in CLSM shall be permitted as approved by the Engineer to suit the project needs.
 - 3. GGBF slag used in CLSM that contacts potable water shall be certified as meeting the requirements of ANSI/NSF 61.

2.03 AGGREGATE

- A. Coarse and fine aggregates shall meet the requirements of ASTM C 33.
- B. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces. Marine dredged aggregates shall not be used.
- C. The loading, storing, unloading, and batching of aggregates shall be done in such a manner as to prevent segregation, intermingling, or the inclusion of foreign materials. All aggregates shall remain in free drainage storage until a stable moisture content is attained prior to placement in the batching plant bins. Each size of coarse aggregate and the fine aggregate shall be kept in separate hoppers or bins. All aggregates shall be delivered to the batching plant bins by a belt conveyor or other approved means; and the operation thereof shall be controlled so as to prevent the mixing of the sizes and kinds of aggregates with

each other. Any mixture of fine and coarse aggregates or of the two sizes of coarse aggregate in the batching plant bins or prior thereto shall be cause for rejection of such materials, and the affected bin or bins shall be emptied and inspected prior to refilling with the correctly graded aggregate.

2.04 FINE AGGREGATES

- A. Fine aggregate shall be composed of clean, sharp, hard, strong, durable, insoluble, uncoated, natural sand, manufactured sand, or a combination thereof. Shall be free from loam, clay lumps or other deleterious substances.
- B. Dune sand, bank run sand and manufactured sand are not acceptable.
- C. Sand having FM less than 2.40 or greater than 3.00 shall not be allowed.
- D. Fine aggregate shall meet the requirements of ASTM C 33 except that loss when tested for soundness using magnesium sulfate shall not exceed 12 percent.

2.05 COARSE AGGREGATES

- A. Coarse aggregate shall be crushed stone processed from natural rock or stone and shall consist of clean, hard, strong, durable, insoluble, unweathered, and uncoated pieces of uniform quality throughout; and shall be free from such alkali, decomposed minerals, organic material, clay, mica, schist, or other foreign matter that will render it unsuitable

2.06 CONCRETE ADMIXTURES

- A. Admixtures may be used in the CLSM mix to enhance certain properties. Admixtures specifically designed for CLSM shall be used to improve flowability, reduce unit weight, control strength development, reduce settlement, reduce bleed water, and increase pumpability.
- B. No admixtures may be used without the prior approval of the Engineer. Laboratory test results or Manufacturer's data must be submitted by the Contractor to the Engineer proving that the admixture will not detract from the specified desired properties.
- C. Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed instructions. All admixtures shall be compatible and by a single manufacturer capable of providing qualified field service representation. Do not use admixtures which have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by Engineer.

2.07 WATER

- A. Water for CLSM shall be clean and free from objectionable mineral salts and from injurious amounts of oils, acids, alkalis, organic materials, or other substances that may be deleterious to CLSM. Water shall meet the requirements of ASTM C 94.

2.08 PROPORTIONING AND MIX DESIGN

- A. Proportioning and performance of CLSM mixtures shall be the responsibility of the Contractor or the Contractor's supplier. The mixture may be rejected for failure to meet, or to sustain, the mixture's consistency and all properties specified herein.
- B. The Contractor shall prepare a design mix and produce a trial batch to show compliance with the specifications and submit the design mix and test results to the Engineer for approval prior to construction. The approved CLSM mix shall not be altered unless otherwise directed by the Engineer. The mix design proportion parameters per cubic yard shall be within the following limits:

Recommended Mix Design Proportion Parameters Per Cubic Yard	
Cement (lbs.)	25-200
Fly Ash (lbs.)	0-700
Fine Aggregate (lbs.)	2500-3500
Water (lbs.)	400-500
Spread Diameter (in.)	8 min
28-Day Comp. Strength (psi)	50-100

- C. CLSM shall have a minimum compressive strength of 50 psi and a maximum compressive strength of 100 psi at 28 days. The cured material shall be excavatable by hand tools or other digging equipment and have a maximum dry unit weight of 100 pounds per cubic foot.
- D. Mix design shall produce a flowable material, with no noticeable segregation, and have a spread diameter no less than 8 inches when tested in accordance with ASTM D6103.
- E. CLSM shall have minimal subsidence and bleed water shrinkage. Evaporation of bleed water shall not result in shrinkage of more than 1/8 inch per foot of CLSM depth. Measurement of final bleeding shall be in accordance with ASTM C940.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Contractor and its installer shall examine the substrate and the conditions under which Work is to be performed and notify Engineer in writing of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.

3.02 MIXING, TRANSPORTING, AND PLACEMENT

- A. All CLSM shall conform to the requirements of ASTM C94 and ACI 304R, except as otherwise specified.
- B. CLSM may be produced on site or batched at a remote facility and appropriately mixed and transported to the site. If transported, an appropriate transit-mix ticket shall be used.
- C. CLSM shall be transported in truck mixers. Agitation of CLSM is required during transportation and waiting time to keep the material in suspension. Hauling and dumping using open-haul unit is allowed if approved by the Engineer.
- D. CLSM mix that has gone for a period of forty-five (45) minutes or longer from the time of mixing without being incorporated into the work shall be discarded. Remixing or tempering shall not be permitted.
- E. The proposed method of application shall be submitted to the Engineer for prior approval and shall be in a manner that will thoroughly fill the desired space.
- F. CLSM shall be placed directly in void using pumps, chutes, conveyor, or bucket depending on the application and accessibility.
- G. CLSM shall be placed with sufficient pressure to overcome friction and to fill the void completely and so that no laborer is required to enter the void to assist in placement. No compaction or vibration equipment shall be allowed. If the mix does not self-consolidate, cease placement of the CLSM material until an acceptable product is provided.
- H. Formed walls or other bulkheads shall be designed and constructed to withstand the hydrostatic pressure exerted by the CLSM. Each lift of CLSM shall be allowed to harden before continuing placement.
- I. CLSM shall not be placed when it is anticipated that the temperature during the following 24 hours drop below forty 40 degrees Fahrenheit at the site of application.
- J. Do not place CLSM in contact with frozen material. Protect CLSM from freezing for a period of 36 hours after placement.
- K. CLSM may not be placed in conditions of inclement weather (e.g., rain), unless approved by the Engineer. If CLSM placement is not proceeding satisfactorily, the Engineer may rescind such approval at any time.
- L. CLSM shall be placed so as to completely fill the space to receive it with no trapped air pockets or other voids. Positive means of allowing air to escape shall be provided where necessary. Where placed against and around existing structures, lift heights shall be limited so as not to overload the structure. Lift heights shall be as approved by the Engineer.

- M. Where CLSM is placed around piping and other elements subject to floating within the CLSM, positive means shall be taken to provide temporary balancing loads to prevent uplift, or fill lift heights shall be limited to prevent uplift.
- N. Application of loads or placement of other fill materials or concrete on top of CLSM shall not occur until the CLSM surface is determined to be suitable for loading per ASTM D6024.

3.03 FIELD QUALITY CONTROL

- A. Sampling and Testing of CLSM:
 - 1. The Contractor shall provide all facilities as may be necessary for the ready procurement of samples of CLSM from the work or truck mixers as required by the Engineer for test purposes.
 - 2. Compression test of cylinders, slump, air content, concrete temperature, unit weight and yield tests shall be utilized to confirm quality of CLSM mix. Should testing results fall outside of the desired range, a revised mix shall be submitted for approval.
 - 3. The Contractor shall supply all equipment necessary to perform the required tests including, but not limited to, cylinder molds, tags, capping compound, slump cones, platform scale, two buckets (each 2 cubic feet in size), thermometers, pressure air meter, and roller meter.

END OF SECTION

SECTION 09 90 00

PAINTING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work of this section consists of painting and finishing work. This is a general specification, and some portions may not be applicable.
- B. See Section 43 41 12 for painting the new water tank roof.

1.02 QUALITY STANDARDS

- A. Painting Subcontractor Qualifications: Painting subcontractor shall have engaged in projects similar in design and extent to that indicated for this project and with a record of successful installations.
- B. Comply with applicable regulations of Occupational Safety and Health Act (OSHA) 28 CFR 1926-1993.
- C. In addition, blasting shall conform to the following standards:
 - 1. Clemtex Limited Anchor Pattern Standards
 - 2. Keane-Tator Surface Profile Comparator
 - 3. Swedish Pictorial Standard as described in SSPC-Visual Book Volume 1
- D. Paint thicknesses specified are minimum dry mil thicknesses. Painting coverage rates in gal per square foot quoted are based on manufacturer's published theoretical coverage data less 20 percent to arrive at practical coverage usage. In situations of discrepancy between mil thickness on surface and coverage rates applied, mil thickness governs.
- E. Paint includes fillers, primers, sealers, emulsions, oils, alkyds, latex, enamels, thinners, stains, epoxies, vinyls, chlorinated rubbers, coal tars, urethanes, shellacs, varnishes, and other applied coatings.
- F. For unspecified materials such as turpentine or linseed oil provide best grade recommended by selected manufacturer.

1.03 SUBMITTALS

- A. As specified in Section 01 33 00 Submittals.
- B. Installer Qualifications: Submit installer qualifications in accordance with Section 01 45 00 Quality Control.
- C. Detailed product data sheets, recommended application procedures, and coverages.

- D. Samples: Complete range of colors for selection.
- E. Test Reports
 - 1. Provide test reports of flame spread per ASTM E84 for paints. Supply for paints requiring ratings per NFPA 101-91.
 - 2. Provide performance and chemical test reports.
- F. Maintenance and Repair Manuals. Include recommended scheduling and repainting in accordance with Section 01 33 00 Submittals.
- G. Coating Test Panels: Field apply coatings to 12 x 12 IN test panel illustrating colors and textures for each surface, material, color, and texture for Owner's approval of test panels.
- H. At project completion furnish two quarts of paint of each type and color used.
- I. At completion of project furnish final paint schedule documenting for each paint product, manufacturer, product name/number, color name/number or formula, and use in accordance with Section 01 33 00 Submittals.
- J. Provide full range of standard and non-standard colors for Engineer to choose from for color selections.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver in original containers, labeled as follows:
 - 1. Name or type number of material
 - 2. Manufacturer's name and stock number
 - 3. Contents, by volume, of major constituents
 - 4. Application instructions
 - 5. Warning labels
 - 6. All unlabeled containers shall be removed from project site.
- B. Protect from freezing or damage.
- C. Store materials in accordance with local, state, and federal requirements for paints, toxic materials, and hazardous materials, in place designated by Owner.
 - 1. Keep storage neat and clean.
 - 2. Repair damage thereto or to surroundings.
 - 3. Remove rags and waste from building daily.
 - 4. Avoid danger of fire.
 - 5. Provide spill containment.

PART 2 – MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

- A. Paint systems presented in this specification are based on the manufacturer named in individual system descriptions.
- B. The manufacturers listed below are acceptable suppliers.
 - 1. Tank Manufacturer Selected
 - 2. All other items not by Tank Manufacturer
 - a. TNEMEC Company, Inc.
 - b. Carboline Company
 - c. Benjamin Moore Paints
 - d. Thoro System Products
 - e. Sherwin Williams Company
 - f. or Approved Equal

2.02 COLOR SCHEDULE

- A. Color:
 - 1. Water inside Vault - Blue, as selected by Owner. Provide all ranges of colors for Owner selection.
 - 2. Tank Overflow Pipe – Match color of new tank exterior
- B. Color Schedule for Pipes:
 - 1. ANSI colors shall be in accordance with ANSI Z 53.1-79.
 - 2. After painting, all pipelines, including tubing, above ground, inside or outside of the structures and buildings in concrete trenches or tunnels, in boxes, etc., and in pipe trays shall be marked with an identification marker indicating the contents of the pipe in accordance to color schedule (marker shall reflect “Service” listed in Pipe color schedule in this section or as shown on Pipe Schedule on the Drawings) and direction of flow arrow. Identification markers shall be placed at no greater than 25-foot intervals inside buildings and at not greater than 50-foot intervals exterior to the building, in tunnels, and other locations. Letter and number size for identification markers shall be as indicated on the table.

PIPE/COVERING O.D. (inches)	COLOR BAND LENGTH (inches)	LETTER HEIGHT (inches)
3/4 to 1-1/4	8	1/2
1-1/2 to 2	8	3/4
2-1/2 to 6	12	1-1/4
8 to 10	24	2-1/2
Over 10	32	3-1/2

3. Unless the line is in such a location that it can be seen only from one direction, such as pipes near a wall, two sets of the code designation shall be applied at each location, placed in the two visible quadrants, with respect to normal viewing positions. In general, pipe identification, size, color and arrangements shall be in accordance with ANSI A 13.1-81.
4. All identification markers shall be manufactured by Seton Identification Products, P.O. Box LB-1-1331, New Haven, CT 06505, (800) 243-6624, or approved equal. They shall be "OPTI-CODE Pipe Markers" or approved equal. Provide "Arrows on a Roll" or approved equal on each end of the pipe marker to help retain marker on pipe. Submit identification marker colors for Engineer's selection.

2.03 PAINT SYSTEMS

- A. P = prime coat. F1, F2 . . . Fn = first finish coat, second finish coat up to the nth finish coat. Where a finish coat of paint is indicated to be at exterior only, it shall be in addition to the other prime and finish coats specified.
- B. Each paint system consists of several coats. The coat thickness indicated for each coat is based on spray application. Other application methods may require multiple coats to achieve desired thickness.
- C. All paint and coating materials furnished for each coating system shall be the products of a single manufacturer.
- D. Only compatible materials shall be used in the work.
- E. All coatings utilized shall be certified "non-lead" (less than 0.06% lead by weight in the dried film) as defined in Part 1303 of the Consumer Product Safety Act.
- F. System No. 1 for Exposed Metals
 1. Paint Material
 - a. Polyamidoamine Epoxy
 2. Tnemec
 - a. P1 = N69 (VOC = 2.38 to 2.79 lbs/gal)
1 coat, 4 dry mils
 - b. F1 = N69 (VOC = 2.38 to 2.79 lbs/gal)
1 coat, 4 dry mils
 - c. F2 = N69 (VOC = 2.38 to 2.79 lbs/gal)
1 coat, 4 dry mils
 - d. F3 at exterior only = 1075 (VOC = 1.84 to 2.55 lbs/gal)
1 coat, 2.5 dry mils

- G. System No. 2 for Copper, Brass, Plastic
 - 1. Paint Material
 - a. Polyamidoamine Epoxy
 - 2. Tnemec
 - a. P1 = N69 (VOC = 2.38 to 2.79 lbs/gal)
1 coat, 4 dry mils
 - b. F1 = N69 (VOC = 2.38 to 2.79 lbs/gal)
1 coat, 4 dry mils
 - c. F2 at exterior only = 1075 (VOC = 1.84 to 2.55 lbs/gal)
1 coat, 2.5 dry mils

2.04 APPLICATION SCHEDULE

- A. Unless otherwise shown or specified, paint all new surfaces in accordance with the following application schedule. In addition, paint existing surfaces scheduled to be coated. In the event of discrepancies or omissions in the following, request clarification from Engineer before starting work in question.
 - 1. System No. 1 for Exposed Metals. Use for all ferrous metals including but not limited to equipment, piping, valves and other similar items.
 - 2. System No. 2 for Copper, Brass, and Plastic. Use for all copper, brass, and PVC surfaces.
- B. Do not paint following unless otherwise noted on the Drawings and specified in individual Specification Sections:
 - 1. Stainless steel or finished metal surfaces
 - 2. Exposed to view aluminum surfaces including immersed surfaces except those noted previously
 - 3. Interior of pipe and conduits
 - 4. Code labels and equipment identification and rating plates
 - 5. Exterior concrete or precast concrete surfaces except as noted previously
 - 6. Piping or pipe conduit when enclosed between suspended ceiling and overhead slabs or located in pipe chases
 - 7. Factory finished equipment and appurtenances
 - 8. Threads on bolts, nuts, and threaded taps

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

- A. General:
 - 1. Prepare internal and external surfaces requiring paint and make sound, clean and free of harmful scale, rust, dust, dirt, oil, loose paint, grease, moisture and other foreign matter. Remove grease, oil or soap accumulations by means of suitable solvents and by thorough washing of surface with clean water.
 - 2. Scrape damaged paint and rust pits back to sound material using scaling hammers, chisels, scrapers, hand or power operated tools.

3. Strip bubbled, cracked, crazed or otherwise defective paint with hand or power tools. Flatten gloss paint with sandpaper. Leave surfaces suitable to receive designated finishes. The use of sandblasting or burning tools on historic materials, except existing piping and valves, is prohibited.
 4. Remove by brush, air blast, or vacuum cleaner shot or grit. Do not contaminate blasted cleaned surfaces prior to painting.
 5. Prepare surfaces and prime prior to installation all elements of construction that are closer than 4 inches to structures to allow for proper preparation after installation. Apply final coatings after installation.
 6. Prepare surfaces as specified and in accordance with recommendations by the paint manufacturer.
- B. Ferrous Metals:
1. Complete all fabrication, welding or burning prior to sandblasting operation. Grind flux, spatter, slag, or other laminations left from welding. Remove mill scale. Grind smooth rough welds and other sharp projections.
 2. Near-white blast clean in accordance with SSPC-SP10-91 ferrous metals located in submerged areas and to 6 inches above liquid level, or areas subject to splash, spillage, or fumes.
 3. Commercial blast clean in accordance with SSPC-SP6-91 ferrous metals located 6 inches above submerged areas and area not subject to splash, spillage, or fumes.
 4. Near-white blast clean in accordance with SSPC-SP10-91 all metals subject to high heat and scheduled to receive heat-resistant coatings.
 5. Complete prime coating of abrasive blasted surfaces prior to rust blooms and within eight hours.
 6. Prepare surfaces according to prescribed conditions above for equipment that does not have primer coat compatible with paint system and reprime with compatible primer.
 7. Where metal is galvanized, brush blast in accordance with SSPC-SP7-91.
- C. Copper and Brass:
1. Remove flux residue from joints and sand to remove oxides.
 2. Solvent clean in effort comparable to SSPC-SP1-82 with suitable solvent.
- D. Plastic:
1. Solvent clean in effort comparable to SSPC-SP1-82 with suitable solvent.
 2. Roughen surfaces.
 3. Final surface preparation as per primer manufacturer.
- E. Underground Piping: Apply only to clean, dry surfaces. Remove rust, paint and other foreign matter by abrasive blasting per SSPC-SP6-91.
- F. Non-Insulated Water Piping: Paint prior to placing in service.
- G. Insulated Pipe and Ductwork: Remove powder, surplus adhesive and size.

- H. Factory Finished Equipment:
 - 1. Solvent clean in effort comparable to SSPC-SP1-82.
 - 2. Spot primer damaged areas on existing coatings.
 - 3. Lightly sand and wipe clean before painting.

3.02 BLASTING PROCEDURES

- A. Blasting abrasive for all painting systems shall be clean copper slag of proper particle size to produce the specified profile. Media shall not contain any extraneous matter. Silica sand shall not be allowed at the project site.
- B. Provide personnel protection in accordance with OSHA Standards.
- C. Do not conduct blast operation on surfaces that will be wet after blasting and before painting.
- D. Apply primer to blasted surface same day as blast and before rusting occurs. Reblast surfaces allowed to set overnight prior to priming.
- E. Have profile depth of blasted surface not less than 1 mil or greater than 2 mils unless recommended otherwise by coating manufacturer.
- F. Compressed air for blasting to be free of water and oil. Provide accessible separators and traps.
- G. Confine blast media to area being prepared. Provide shields of polyethylene sheeting or other such barriers to confine blasting media. Place tents over rotating equipment near blasting operation for protection.
- H. Reblast surfaces not meeting specifications at no additional expense to Owner.
- I. Protect nameplates, valve stems, rotating equipment, motors and other items that may be damaged from blasting.
- J. Plug pipes, holes or openings before blasting. Keep plugged until blasting operation is completed and area is cleaned up.

3.03 PRIME COAT

- A. Primer coats specified in painting system shall be field applied unless shop applied primer is provided.
- B. Prime ferrous metals bedded in concrete to minimum of 1 inch below exposed surfaces.
- C. Ensure prime coatings are compatible with finish coatings. If prime coating is not compatible apply a universal barrier coat of 2 mils thickness prior to finish coats, or remove primer coat and reprime.

3.04 APPLICATION

- A. Apply paint using skilled and competent tradesmen, proper tools and application techniques for different aspects of work. Protect machinery, electrical panels and motors, couplings, and other equipment that may be damaged by paint operations. Clean off paint stops and splashes on areas not designated to receive paint as work proceeds.
- B. Brush, spray or roller, apply in strict accordance with selected painting manufacturer's published recommendations for each paint system primer and finish coats.
- C. Use clean brushes, spray equipment and rollers.
- D. Ensure mixing, thinning, pot life, application procedure, equipment, coverage, curing, recoating, storage and number of coats are in accordance with this specification and coating manufacturer's instructions.
- E. Avoid degradation and contamination of blasted surfaces and avoid intercoat contamination. Ensure method of cleaning contaminated surface follows manufacturer's recommendations.
- F. Protect all equipment and previously painted surfaces. Protect brick and stone masonry indicated to be unpainted.
- G. Work each application of material into corners, crevices, joints and other difficult to work areas, and distribute evenly over flat surfaces.
- H. Allow coated surfaces to cure prior to allowing traffic or other work to proceed which might damage finished surface.
- I. Have spraying operation conform to following procedures:
 - 1. Have spray equipment to be used for each application of particular coating available for inspection.
 - 2. Place operative moisture trap between air supply source and application equipment. Bleed water continuously from moisture trap.
 - 3. Ensure air source is sufficient to provide continuous volume of 20 CFM air at each gun nozzle at 80 psi for applying coatings by conventional spray technique. When coatings are applied by airless spray technique, ensure input pressure to pump is such to produce uniform spray patterns.
 - 4. For spraying applications, provide regulators and gauges in good working order on both air and material lines. Use operating pressures compatible for particular paint.
 - 5. Keep dry overspray to minimum.
 - 6. Spray nozzle to be a minimum of 8 inches to a maximum of 18 inches from substrate during application of paint.
- J. Do not paint when surface temperature being painted is less than 5°F above dew point, when relative humidity is greater than 85 percent, when wind velocity is above 15 mph,

when surface temperature is less than 50°F or greater than 140°F unless precautions accepted by Owner are taken. Provide adequate ventilation and keep temperature constant to prevent condensation.

- K. Do not apply primer closer than 6 inches to a nonblasted area. Ensure sandblasting operation does not result in embedment of sand particles in paint film.
- L. Paint coats are intended to cover surfaces to mil thickness specified. If surfaces are not covered adequately by this thickness, apply additional coats as required at no additional expense to Owner.
- M. Brush out immediately runs or sags or remove and recoat entire surface.
- N. Brush or spray bolts, welds, sharp edges and difficult access areas with primer prior to primer spray application.
- O. Apply zinc-rich primers under continuous agitation.
- P. Clean equipment at completion of each painting operation while material is still wet or uncured. Flush fluid hoses and guns at completion of each painting operation.
- Q. Maintain current schedule showing when work or respective coats of paint in various areas is to be completed.
- R. Paint surfaces prior to installation on items that cannot be properly prepared after installation.

3.05 INSPECTION

- A. Provide access to work for Owner and painting manufacturer while work is being performed.
- B. Owner will approve prepared surfaces before primer and successive coats are applied.
- C. Have profile depth measurements made in presence of Owner in accordance with Steel Structures Painting Council steel structures painting manual latest edition of Good Painting Practices.
- D. Have measurements of paint dry film thickness made with Mikrotest gauge calibrated against National Bureau of Standards "Certified Coating Thickness Calibration Standards" in presence of Owner. Owner may measure paint thickness at any time during project to ensure conformance with specification.
- E. Ensure finished work is free of abrasions and uniform in color and appearance.

- F. Provide wet film thickness gauges. Monitor work of painters and blasters. Provide temperature gauge and determine surface temperature of items to be blasted or painted. Provide sling psychrometer to monitor humidity and dew point at all times.
- G. Replace or repair work, materials or equipment not meeting these specifications.

3.06 PROTECTION AND CLEAN-UP

- A. Protect work of other trades, against damage by painting and finishing work. Leave all such work undamaged. Clean, repair or replace, and repaint any damaged areas as directed by Owner or Engineer.
- B. Provide "Wet Paint" signs as required.
- C. Remove temporary protective wrappings provided by others for protection of their work after completion of painting. Clean all window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping. Do not damage finished surfaces.
- D. On job completion remove all sand, debris, and rubbish, and repair or clean surfaces which are marred or spotted with other paint.
- E. Remove any surplus materials, scaffolding and debris.

END OF SECTION

SECTION 26 00 00

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes basic electrical requirements for materials and methods applicable to electrical equipment specified under this section and other related sections.
 - 1. Conduit
 - 2. Boxes
 - 3. Duct Bank
 - 4. Wire and Cable
 - 5. Wiring Devices and Device Plates
 - 6. Maintenance Materials
 - 7. Grounding Materials
 - 8. Luminaries
 - 9. Power Panels
- B. Related Sections:
 - 1. Division 01 – Shop Drawings and Product Data
 - 2. Division 01 – Construction Facilities and Temporary Controls
 - 3. Division 01 – Materials and Equipment
 - 4. Division 01 – Operation & Maintenance Data
 - 5. Division 31 – Earthwork
 - 6. Division 03 – Cast-In-Place Concrete
 - 7. Division 09 – Coatings

1.02 REFERENCES

- A. UL – All applicable standards
- B. IEEE – All applicable standards
- C. IPCEA – All applicable standards
- D. NEMA – All applicable standards
- E. ANSI/NFPA 70 – National Electrical Code
- F. ANSI C2 – National Electrical Safety Code
- G. ANSI/NEMA FB 1 – Fittings and Supports for Conduit and Cable Assemblies
- H. ANSI/NEMA OS 1 – Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

- I. ANSI/NEMA OS 2 – Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports
- J. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum)

1.03 SUBMITTALS

- A. Information covering all material that is to be used on this project shall be submitted.
- B. Each sheet of descriptive literature shall be clearly marked to identify the material or equipment for which it pertains.
- C. Equipment on submitted sheets that is not for this project shall be crossed out.
- D. As a minimum the following information shall be submitted:
 - 1. Lamp fixture descriptive sheets identified by the fixture schedule letter
 - 2. Equipment sheets shall identify what the equipment refers to by calling out the name of the equipment on the sheet.
 - 3. Schematics and connection diagrams for all electrical equipment shall be submitted.
 - 4. Submit all types of conduit and cables with manufacturer and sizes as well as all appurtenances.

1.04 QUALITY ASSURANCE

- A. Supplier's qualifications
 - 1. The entire system shall be designed, coordinated, and supplied by a qualified Electrical Contractor who is regularly engaged in the business of building electrical systems for water and wastewater projects. The Electrical Contractor shall provide a "Statement of Qualifications" indicating that they have successfully provided similar work for at least 5 years.
- B. Coordination
 - 1. The electrical equipment shall be designed and coordinated for proper operation with related equipment and materials furnished by other suppliers under other sections of these specifications. All devices shall be applied in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the instrument or device manufacturer and the manufacturer of related equipment.
 - 2. Installation drawings shall be prepared for interconnecting wiring and piping between the related equipment and the equipment furnished under this section. All interconnecting wiring shall be appropriate for the service and shall result in a properly functioning system.
 - 3. The Contractor shall provide coordination with other contractors and supervision of installation as required during construction.
 - 4. All service entrance work shall be in accordance with the local utility standards.
 - 5. The electrical contractor shall coordinate all service entrance work with the local utility. The local utility is Holy Cross Energy.

6. The electrical contractor shall NOT pay for the utility's work. That shall be billed directly to the owner.
7. Accurately record actual locations of conduit, duct banks, panels, and accessories.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable Building Code.
- B. Electrical: Conform to latest version of NFPA 70.
- C. Coordinate, obtain, and pay for all permits, inspections and approvals of authority having jurisdiction.
- D. Comply with local electrical codes in force or in the absence of local electrical code, the latest edition of the National Electrical Code, ANSI C1.

1.06 WARRANTY

- A. The electrical contractor shall warrant the supplied equipment and labor for a period of one year from the date of system acceptance.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. The work for this project is for a functioning city building. All new work shall be done in a way that allows the existing facility to maintain its operation.
- B. All equipment furnished under this Section shall be selected by the Contractor for its superior quality and intended performance. Unless indicated otherwise, all equipment and material shall be new, undamaged, and meet the requirements of UL. Where UL requirements are not applicable, equipment and material shall be identified as such by the supplier and approved by the Engineer before purchase and installation. Equipment and materials used shall be subject to review and shall comply with the following requirements.
 1. Conduit
 - a. Minimum Size: $\frac{3}{4}$ inch unless otherwise specified, or $\frac{1}{2}$ inch for luminaries pendants.
 - b. Underground Installations:
 1. Over 100V: More than five feet from foundation wall: Use thick wall nonmetallic conduit.
 2. Within five feet from foundation wall: Use rigid steel conduit
 3. Under 100V: Use rigid steel conduit
 4. Minimum size: 1 inch.
 - c. Outdoor Locations, Above Grade: Use rigid steel conduit.
 - d. In Slab Above Grade:
 1. Use rigid steel conduit for circuits that are 24V or less.
 2. Use rigid thick wall non-metallic conduit for 120V to 480V circuits.

3. Maximum Size Conduit in Slab: 2 inch, 1 inch for conduits that cross over each other, or with structural engineer's approval.
4. Conduits shall not be spaced closer than 3 conduit widths on center.
5. Aluminum conduit shall not be embedded in concrete.
6. Conduits shall not pass through a structural concrete beam without the structural engineer's approval.
- e. In or under slab on grade:
 1. Use rigid steel conduit for circuits that are 24V or less.
 2. Use rigid thick wall non-metallic conduit.
- f. Wet and damp locations: Use rigid steel conduit or aluminum conduit.
- g. Dry locations:
 1. Concealed: In walls or above ceilings, use rigid steel or aluminum conduit.
 2. Exposed: Use rigid steel conduit or aluminum conduit.
- h. Rigid Steel Conduit.
 1. Rigid steel conduit shall be heavy wall, hot-dipped galvanized, and shall conform to Fed Spec WW-C-581 and ANSI C80.1, and shall be manufactured in accordance with UL 6.
- i. Rigid Nonmetallic Conduit (PVC).
 1. PVC conduit shall be heavy wall, schedule 40, shall be UL labeled for aboveground and underground uses.
- j. PVC-Coated Rigid Steel Conduit.
 1. The conduit shall be rigid steel and before the PVC coating is applied, the hot-dipped galvanized surfaces shall be coated with a primer to ensure a bond between the steel substrate and the coating. The PVC coating shall be bonded to the primed outer surface of the conduit at a thickness of at least 40 mils. A two part urethane chemically cured coating shall be applied at a nominal 2 mil thickness to the interior of all conduit and fittings.
 2. Manufacturers: Ocal, PermaCote, or Robroy Industries.
- k. Rigid Aluminum Conduit.
 1. Rigid aluminum conduit shall be heavy wall and shall conform to Fed Spec WW-C-581 and ANSI C80.1, and shall be manufactured in accordance with UL 6.
- l. Flexible connections
 1. Conduit: Moisture proof vinyl jacketed, liquid-tight, hot-dipped galvanized flexible steel and shall be UL labeled.
 2. Connectors: Watertight, Appleton Type ST or STB, Crouse-Hinds Type LT or LTC, or equal.
2. Outlet Boxes
 - a. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, Galvanized.
 1. Luminaries and equipment supporting boxes: rated for weight of equipment supported.
 2. Concealed installations.
 - b. Nonmetallic outlet boxes: ANSI/NEMA OS 2.
 - c. Cast Boxes: NEMA FB 1, Type FD, Cast Ferroalloy.
 1. Provide gasketed cover by box manufacturer.
 2. Provide threaded hubs.

3. Models VXF, GRFX as manufactured by Crouse-Hinds.
 4. Models SEH, JBDX, with mounting lugs as manufactured by Appleton
3. Pull and Junction
 - a. Sheet Metal Boxes: NEMA OS 1, Galvanized Steel.
 - b. Surface-Mounted Cast Metal Box: NEMA 250, Type 4 flat-flanged, surface-mounted junction box.
 1. Material: Galvanized cast iron Cast aluminum in corrosive areas.
 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
 3. Model: WCB as manufactured by Crouse-Hinds.
 - c. In-Ground Cast Metal Box: NEMA 250, Type 6, outside flanged, recessed cover box for flush mounting.
 1. Material: Galvanized cast iron.
 2. Cover: Nonskid cover with neoprene gasket and stainless steel cover screws.
 3. Cover Legend: ELECTRIC.
 4. Model: WPD as manufactured by Crouse-Hinds.
4. Large Junction Boxes and Wiring Gutters
 - a. Indoor Locations:
 1. Steel, NEMA 12.
 - b. Outdoors:
 1. Stainless steel.
 2. Weather-tight NEMA 4.
 - c. Construction.
 1. Provide rigid handles for box covers larger than 9 sq. ft. or heavier than 25 lbs.
 2. Provide split covers for covers larger than 12 sq. ft.
 3. Aluminum boxes in concrete not allowed.
5. Seal Fittings
 - a. Model ESU with Apelco sealing cement and fiber, as manufactured by Appleton.
 - b. Model EZS with Chico X Fiber and Chico A compound as manufactured by Crouse-Hinds.
6. Deflection Fittings
 - a. Locations:
 1. Underground conduit runs.
 2. Runs between concrete sections subject to relative movement.
 - b. Material:
 1. Ferroalloy hubs.
 2. Neoprene outer jacket.
 3. Stainless steel jacket clamps.
 4. Molded plastic inner sleeve.
 5. Tinned copper braid grounding strap.
 - c. Model XD as Manufactured by Crouse-Hinds.
7. Expansion Fittings
 - a. Locations:
 1. In long conduit runs, to permit linear movement caused by thermal expansion and contraction.
 2. In long conduit runs to prevent conduit from buckling.

3. Indoors and outdoors, where conduit expansion occurs or where there is a wide temperature range.
4. At structural expansion joints.
- b. Material:
 1. End fittings: Ferroalloy.
 2. Body: Steel conduit.
- c. Provide Bonding Strap When Used Outdoors.
- d. Model XJ, as Manufactured by Appleton and Crouse-Hinds.
8. Flexible Sealing Compound
 - a. "Duxseal" as Manufactured by Johns-Manville.
 - b. "Permagum" as Manufactured by In mount.
9. Coal Tar Epoxy Paint
10. Wire and Cable
 - a. 600 Volt Power Cable
 1. General Use:
 - a) Conductors: Single, copper, 12 AWG minimum.
 - b) All conductors shall be stranded.
 - c) Insulation: 600V thermoplastic, UL Type THWN/THHN.
 - d) Suitability: Wet or dry locations at 75° C and 90° C copper temperature.
 - e) Or as specified for service entrances.
 2. Service entrance and 4 AWG and above:
 - a) Conductors: Single, stranded, copper.
 - b) Insulation: 600V cross-linked polyethylene, UL Type XHHW/USE or THHN.
 - c) Suitability: Wet or dry locations at 75°C and 90° C copper temperature.
 3. Terminations
 - a) Lugs, cup washers or pressure type; do not use wire nuts on stranded cable or wrap standard cable around screw type terminals
 - b. Lighting Circuits
 1. General Use:
 - a) Conductors: Single, copper, 12 AWG minimum.
 - b) Conductors may be solid or stranded.
 - c) Insulation: 600V thermoplastic, UL Type THWN/THHN.
 - d) Suitability: Wet or dry locations at 75° C and 90° C copper temperature.
 2. Terminations:
 - a) Lugs, cup washers or pressure type; do not use wire nuts on stranded cable or wrap stranded cable around screw type terminals.
 - c. Control circuits
 1. General Use:
 - a) Conductors: Single, tinned copper, 14 AWG
 - b) All conductors shall be stranded
 - c) Insulation: 600V thermoplastic, UL Type THWN/THHN.
 2. Millivolt or Milliampere Instrumentation and Control.
 - a) Conductors: 18 AWG stranded copper, 2 or 3 as required.
 - b) Insulation: 15 mils, minimum, 90°C PVC.

- c) Shield: Mylar aluminum tape with 20 AWG copper drain wire, fully covering conductors.
 - d) Jacket: 20 mils, minimum, 80°C PVC.
 - e) Suitability: Wet or dry steel conduit.
- 3. Manufacturers: Belden “UL Instrumentation Cable – 1032A”, Samuel Moore “Dekoron ICMX” No. 1852-686 and 1862-686, or equal.
- d. Telephone and Networking
 - 1. Cable.
 - a) The cables shall be rated for use in communications circuits.
 - b) The cables shall be rated for riser applications.
 - c) The cables shall be rated for 75 degrees Celsius applications.
 - d) The cables shall be free of defects and splices.
 - e) The cables shall be rated for outdoor applications.
 - f) The cables shall be rated for P-MSHA applications.
 - g) The cables shall pass a -40 degree Celsius cold bend test per UL 1581.
 - h) The cables must be UL third party verified to ANSI/TIA/EIA-586-B.2 Category 5e.
 - i) The cable shall be ROHS compliant.
 - j) The cable shall be CE compliant.
 - k) Conductors
 - 1) The conductors shall be solid, bare copper per ASTM B-3.
 - 2) The conductors shall be #24 AWG (.20 sq mm).
 - l) Insulation
 - 1) The insulation shall be polyolefin.
 - 2) The insulation shall be free of defects and splices.
 - m) Pairs
 - 1) The cable shall contain four pairs.
 - 2) The insulated conductors shall be bonded together down the entire length of the pair.
 - 3) The pairs shall be marked with a permanent, extruded stripe identification of tip and ring insulated conductors.
 - 4) Each pair shall have a unique twist length to minimize pair to pair coupling.
 - n) Shielding
 - 1) Shielding shall be an aluminized foil with the foil facing inward, where required.
 - 2) Unshielded cables shall be acceptable except where shielding is required for the system.
 - o) Jacket.
 - 1) All cables shall have a continuous jacket of Polyvinyl Chloride (PVC).
 - 2) Jacket thickness: The jackets shall be .030" (.75 mm) nominal thickness.
 - 3) The jackets shall be ultraviolet (UV) radiation and sunlight resistant per UL 1581.
 - 4) The jackets shall be oil resistant per UL 1581 Class 43.

p) Manufacturer: Belden “Industrial Data Solutions – 7923A” or equal.

11. Wiring Devices

a. General:

1. Industrial Specification grade.
2. White.

b. Receptacles:

1. 120 V duplex outlets: NEMA 5-20R, 3 wire, grounding, 20A, 125 V, Leviton 5362, or approved equal.
2. 120 V duplex GFCI outlets: NEMA 5-20R, 3 wire, grounding, 20A, 125 V, Leviton 7899, or approved equal.
3. 240 V duplex outlets: NEMA 6-20R, 3 wire, grounding, 20A, 250 V, Leviton 5462, or approved equal.
4. Welding outlets: 50A, 125/250V, 3 pole, 4 wire, grounding, NEMA 14-50R, Leviton 55050, or approved equal.

c. Light Switches:

1. 277 V lighting circuits: 20 amp, 120/277 V, Leviton 1221-2W to 1224-2W, or approved equal.

12. Device Plates

a. General:

1. Mounting hardware countersunk and finished to match plate.
2. Provide over-sized plates where standard plates do not cover wall opening.
3. Provide engraving as indicated on drawings.

b. Indoors:

1. Surface mounted devices: Galvanized or cadmium-plated steel.
2. Flush mounted devices in other finished areas: Phenolic plastic, white.
3. All other flush mounted devices: Type 302 stainless steel.

c. Outdoors and Indoors when identified on Drawings as Weatherproof:

1. Weatherproof with spring doors for receptacles and with provisions for padlocking switches on and off.
2. Provide an adaptor plate for flush mounted device plates, Crouse-Hinds FS031, or equal.

13. Grounding and Bonding

- a. Provide rod electrodes, exothermic connections and mechanical connections.
- b. Building perimeter ground cable shall be minimum of 4/0 AWG bare copper.
- c. Duct bank ground cable shall be minimum of 4/0 AWG bare copper.
- d. Other ground cable shall be as noted on the drawings.

14. Luminaries

- a. Furnish products as specified on drawings.
- b. Install ballasts, lamps, and specified accessories at factory.
- c. Accessories:
 1. Provide swivel-type box covers.
 2. Provide threaded conduit pendants.
- d. Provide all lamps and required mounting hardware.

15. Lighting Panels

a. General:

1. Circuit breaker panel board.
 2. With neutral.
 3. Dead front.
 - b. Enclosure:
 1. NEMA 1 or as indicated on the drawings.
 2. Door with latch and lock.
 3. Typewritten circuit directory.
 4. Ground stud bolt through cabinet with removable 1/0 AWG bond to the panel ground bus and an external clamp connector for a station ground conductor.
 - c. Circuit Breakers:
 1. Molded case thermal magnetic.
 2. Multiple pole breakers shall be common trip.
 3. Bolt-in or plug-in.
 4. Individually front replaceable.
 5. Indicating "On", "Off", and "Tripped".
 6. 10,000 amp RMS symmetrical interrupting capacity at 240 V or as indicated on the drawings.
 7. Handle clips to prevent casual operation for circuit breakers indicated on drawings.
 8. Ground fault interrupting breakers with a sensitivity of 5mA for receptacle branch circuit and where indicated on drawings.
 9. Breakers, trip ratings, and number of poles as indicated on the drawings.
 - d. Buses:
 1. Two phase and neutral bus insulated from cabinet.
 2. Ground bus.
 - a) Connected to cabinet.
 - b) Clamp type lug for supply circuit and each load circuit.
 - c) Removable bond to neutral bus.
 3. Copper.
 4. Ampere and voltage ratings as indicated on the drawings.
 5. Bracing coordinated with circuit breakers interrupting capacity.
16. Equipment Disconnects
- a. General:
 1. Heavy-duty safety switches.
 2. Square D or Cutler-Hammer.
 - b. Enclosure:
 1. Indoor dry areas: NEMA 12.
 2. Outdoor: NEMA 4X.
 3. Corrosive Areas: NEMA 4X.
 4. Use above guidelines unless otherwise noted on drawings.
 5. Padlocked external operating handle.
 - c. Switch:
 1. 25,000 amp symmetrical withstand or as indicated on the drawings.
 2. Poles to match equipment served.
 3. 600 VAC.

4. Continuous current rating not less than the serving branch circuit over current protection.
 5. Non-fusible except where fusing is required by the served equipment or as noted on the drawings.
17. Separately Enclosed Motor Starters.
- a. General:
 1. Starters shall have a disconnecting means.
 2. 3 phase: NEMA size 1 minimum size or as indicated on the drawings.
 3. Dry type control power transformer for 120VAC control power sized to handle all loads simultaneously, both primary leads fused and one secondary lead fused and one secondary lead grounded.
 4. Two spare NO and NC auxiliary contacts.
 5. Pilot devices.
 6. Nameplates to identify the starter and all the items in the starter.
 7. The entire starter unit shall have a short circuit current rating higher than the fault current available at the starter location.
 8. Square D or Cutler-Hammer.
 - b. Enclosure:
 1. Indoor dry areas: NEMA 12.
 2. Outdoors & corrosive areas: NEMA 4X.
 3. External operating handle to be interlocked with the door to prevent opening door when handle is in the closed position.
 4. Padlocked external operating handle.
 - c. Contactor:
 1. 3 phase: NEMA size 1 minimum size or as indicated on the drawings.
 2. 1 phase: NEMA size 0 minimum size or as indicated on the drawings.
 3. Rated for the voltage being provided.
 4. 120 VAC coils.
 5. Non-reversing NEMA rated magnetic starters.
 - d. Overloads:
 1. One solid state overload relay in each phase.
 2. External manually reset push button for reset of the overload relay.
 3. Overloads shall provide phase loss tripping capability.
 - e. Disconnecting Device:
 1. 3 phase: MCP type disconnect rated at 25KAIC minimum.
 2. 1 phase: MCP or fused type disconnect rated at 10KAIC minimum.
18. Surge Protective Device (SPD).
- a. General:
 1. SPD units shall be installed as shown on the drawings.
 2. SPD units shall be appropriate for the voltages indicated on the drawings.
 3. Approved manufacturers: Cutler Hammer, Square D, LEA, or equal.
 4. SPD units shall comply with UL 1449 and 1283.
 5. SPD units shall comply with IEEE C62.41 and IEEE C62.45.
 6. SPD units shall have a 30 amp disconnect directly before the TVSS unit.
 7. SPD units shall have indication for trouble alarms and surge count.

8. For assembled equipment the SPD unit shall be of the same manufacturer as the assembled equipment.
- b. Ratings:
 1. Maximum let through voltage shall be:

Mode	120/208	277/480
L-N or L-G	400V	800V
L-L	800V	1800V
 2. Minimum total surge current capability:

Location	Per Phase	Per Mode
Switchgear	250 KA	125KA
MCC	160KA	80KA
Panelboards	120KA	60KA

2.02 SPARE PARTS

- A. The Supplier shall furnish and deliver the following spare parts.
- B. The following spare parts to be furnished as a minimum:
 1. 25% replacement lamps for lighting fixtures.
 2. 25% replacement lamps for pilot light.
 3. Two (2) sets of each type of fuse used in the project.
 4. Two (2) spare ballast of each type specified.
- C. All of the above parts shall be provided as spare parts and shall be packaged new in the original manufacturer's packaging. A list of spare parts shall be provided.

PART 3 EXECUTION

3.01 INSTALLATION REQUIREMENTS

- A. General Requirements
 1. The instrumentation equipment shall be installed by the Contractor or his subcontractors in accordance with the manufacturers' instructions. The services of the system supplier's technical representative shall be provided as necessary to calibrate, test, and advise others of procedures for adjustment and operation.
- B. Inspection
 1. Inspect materials and equipment for signs of damage, deterioration or other deleterious effects of storage, transportation, handling, or defects in manufacture or assembly.
 - a. Replace with identical new materials or equipment or repair to like new condition any materials or equipment showing such effects to the satisfaction of the Engineer and Owner.
- C. Equipment Installation
 1. Handle, install, connect, clean, condition, align and adjust products and equipment in strict accordance with manufacturer's instructions and in conformity with specification requirements.

- a. Separate sheet metal junction boxes, equipment enclosures, sheet metal raceways, etc., mounted on water or earth-bearing walls or wall-mounted outdoors ¼" from wall be corrosion resistant spacer.
- b. Seal the base of all outdoor switchgear, motor control center, and similar equipment with grout.
- c. Screen or seal with flexible sealing compound all openings into outdoor equipment to prevent the entrance of rodents, wasps, and mud-daubers.
- d. Electrical work shall conform to the construction schedule and progress of other trades.
- e. Maintain one complete set of manufacturer's installation instructions at the jobsite during installation and until installation is accepted by the Engineer and Owner.
- f. Perform all work in accordance with manufacturer's instructions.
 1. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by contract documents.
 2. Should job conditions or specification requirements conflict with manufacturer's instructions, consult with Engineer prior to proceeding.
- g. Field Wiring. Field wiring materials and installation shall conform to the requirements of the electrical section.

D. Identification:

1. Conduit. All conduits shall be provided with identification tags. Tags shall be brass nameplates with 3/8" high lettering and attached to the conduits by means of stainless steel wire. Conduits shall be identified at both ends with the same identification number.
2. Cable. Except for lighting and receptacle circuits, each individual wire in power, control, indication, and instrumentation circuits shall be provided with identification markers at the point of termination. Power wires without individualized identification numbers shall be color coded with electrical tape or colored wire jacket. The wire markers shall be of the heat-shrinkable tube type.
3. Control Stations. Control stations shall be provided with nameplates identifying the related equipment. Pilot controls and indicating lights shall have engraved or etched legends ("start", "stop", etc.) as indicated on the drawings. Nameplates shall be laminated plastic, with 1/8 inch engraved letters, and shall be securely fastened to the control stations.
4. Circuit Breakers. Circuit breakers shall be provided with nameplates identifying related equipment. Nameplates shall be laminated plastic, with 1/8 inch engraved letters, and shall be securely fastened to the circuit breakers.

E. Raceways:

1. General:
 - a. Except as otherwise indicated on drawings, conduit shall be concealed in finished areas and exposed in unfinished areas.
 - b. Rigid steel conduit and aluminum conduit connections and terminations shall be reamed, de-burred, threaded and provided with bushings.
 - c. Securely fasten conduit connections to sheet metal enclosures with locknuts inside and out. Conduit hubs outdoors and in wet locations.

- d. Provide deflection fittings across structural joints where structural movement is allowed.
- e. Keep conduit clear of structural openings and indicated future openings.
- f. Provide flashing and seal watertight conduits through roofs and metal walls.
- g. Neatly grout conduit into any opening cut into structure.
- h. Cap or plug conduits during construction to prevent the entrance of trash, dirt and water.
- i. Minimum conduit size shall be $\frac{3}{4}$ ", except $\frac{1}{2}$ " for luminaries pendants or as noted on drawings.
- j. Seal conduits with flexible sealing compound forced to a minimum depth equal to the conduit diameter after cable is installed.
 - 1. At handholes, manholes, and vaults.
 - 2. Building entrance junction boxes.
 - 3. One inch or larger connections to equipment.
- k. Provide flexible conduit where flexible connections are necessary, including each motor without flexible cord.
 - 1. Keep length to a minimum, not to exceed 6' maximum.
 - 2. No sharp bends.
- l. Provide suitable pull string in each empty or spare conduit.
- 2. Conduit exposed in structures:
 - a. Install parallel to structural members and surface.
 - b. Install conduits of the same general routing parallel with symmetrical bends.
 - c. Arrange supports to prevent misalignment during wiring installation.
 - d. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
 - e. Group related conduits; support using conduit rack. Construct rack using steel channel provide space on each for 25 percent additional conduits.
 - f. Install no more than equivalent of three 90° bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch size.
 - g. Provide suitable pull string in each empty conduit except sleeves and nipples.
 - h. Maintain 6" clearance to ducts, piping and flues.
 - i. Support rigidly with galvanized or cadmium-plated hardware and framing materials, including nuts and bolts.
 - j. Provide expansion fittings at 100' centers outdoors, 200' centers indoors; in each conduit run longer than 100' outdoors, 200' indoors.
 - k. Provide galvanized pipe caps on conduit stubs for future use.
 - l. Allow 7' headroom for horizontal conduit runs, except along structures, piping equipment or where not possible.
 - m. Except as otherwise indicated, do not install exposed conduit in water chambers.
 - n. Where allowed, coat conduit exposed in water chambers with 2 coats of coal tar paint with paint injuries repaired or use PVC coated conduit.
- 3. Conduit concealed in structure:
 - a. Install between reinforcing steel in slabs with reinforcing in both faces.
 - b. Install under reinforcing steel in slabs where only a single layer is provided.

- c. Terminate conduit for future use in equipment or by galvanized couplings and conduit plugs flush with structural surfaces. Seal plugs with self-leveling caulk.
- d. Maximum of two conduits crossing each other in slab.
- 4. Underground:
 - a. One inch minimum.
 - b. Encased in concrete.
 - 1. Two inches between conduits.
 - 2. Three inches over conduit where not reinforced.
 - 3. Three inches over reinforcing.
 - 4. Reinforced at and 5' past portion on disturbed earth or subject to traffic.
 - 5. Reinforced within 5' of a structure, manhole or vault.
 - 6. Reinforced for entire length and 2' beyond each adapter to steel conduit if non-metallic is used in duct bank.
 - 7. Where capped underground, reinforce the last 2' and extend steel and conduit 2' past end of duct bank. Paint all un-encased metal with 2 coats of coal tar paint.
 - 8. Continue encasement on outdoor risers to 3" above grade and crown and chamfer top.
 - c. Two foot minimum bend radius at vertical risers, 3 foot elsewhere.
 - d. Install underground conduit so that it does not drain to cable pulling access in buildings; where necessary, provide a handhole or manhole near or adjacent to building.
 - e. Provide 3 foot minimum earth cover.
 - f. Install underground conduits through buildings, manhole, handhole and vault walls in box outs as indicated on the drawings.
 - g. All steel inside manholes, handholes and vaults shall be galvanized with bared spots treated with zinc rich paint.
 - h. Provide ¾" galvanized steel pulling eyes on opposite walls below the centerline of each duct bank.
 - i. Provide end bells at wall terminations and adapters for steel conduit continuations for non-metallic duct systems.
 - j. Isolate intercommunication and milliamperere level instrumentation circuits from all power wiring raceways, conduits, boxes, vaults, manhole and handhole.
 - k. Provide a full-size extension for each underground conduit entering a building.
 - l. Rigid nonmetallic conduit (PVC) shall be fastened no less than every 4 feet.
- 5. Junction boxes and wiring gutters:
 - a. Install electrical boxes as shown on drawings and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
 - b. Install pull boxes and junction boxes to maintain headroom and to present neat mechanical appearance.
 - c. Install level and plumb.
 - d. Where indicated, provide a removable side opposite underground duct banks.
 - e. At least code size including space for full size continuation of any conduit not originally continued.
 - f. Arrange conduit for maximum space for future conduits.

- g. Support boxes independently of conduit except cast box that is connected to rigid metal conduits both supported within 12 inches of box.

F. Wire and Cable

1. General:

- a. Protect the cable and avoid kinking conductors, cutting or puncturing jackets, contaminating by oil or grease or damaging in any manner.
- b. Terminate stranded cable with lugs, cup washers, or pressure type connectors; do not wrap stranded cable around screw type terminals.
- c. Splice stranded cable with pressure type connectors; do not use wire nut type connectors on stranded cable.
- d. Splice cables only at readily accessible locations.
- e. Do not pull cable tight against bushings or press heavily against enclosures.
- f. Use cable pulling lubricants as recommended by the cable manufacturer.
- g. Use swab to clean conduits and ducts before pulling cables.
- h. Install cable and accessories in accordance with manufacturer's instructions.
- i. Where necessary to prevent heavy loading of cable connectors due to cable weight, support cables in vertical risers with woven cable grips.
- j. Coil and tape spare cable ends.
- k. Support each 250 MCM or larger cable, and each conduit group of smaller cables from manholes, handholes or vault walls.
- l. Use Stranded conductor for feeders and branch circuits.
- m. Use stranded conductors for control circuits.
- n. Use conductor not smaller than 12 AWG for power and lighting circuits.
- o. Use conductor not smaller than 16 AWG for control circuits.
- p. Use 10 AWG conductors for 20 ampere, 120 Volt branch circuits longer than 100 feet.
- q. Pull all conductors into raceway at same time.
- r. Use suitable wire pulling lubricant for building wire 8 AWG and larger.
- s. Protect exposed cable from damage.
- t. Neatly train and lace wiring inside boxes, equipment, and panel boards.
- u. Clean conductor surfaces before installing lugs and connectors.
- v. Make splices, taps, and terminations to carry full ampacity of conductors.

2. Special cables:

- a. Isolate networking and milliamperere level instrumentation cables from all power circuits.
- b. Isolate telephone cables from all other circuits.

3. Conductor identification:

- a. Color code all service, feeder, and branch circuit conductors, 277/480 VAC and above as follow:
 - 1. Phase A: Brown
 - 2. Phase B: Orange
 - 3. Phase C: Yellow
 - 4. Neutral: White
 - 5. Ground: Bare or Green
- b. Color code all feeder, and branch circuit conductors, 120/208 VAC as follows:

1. Phase A: Red.
2. Phase B: Black.
3. Phase C: Blue.
4. Neutral: White.
5. Ground: Bare or Green.
- c. Identify single control conductors by color coding orange and by labeling each end of conductors by color coding orange and by labeling each end of conductor with heat shrink-tube type wire markers.
- d. Identify multi-conductor instrumentation and control cables with heat shrink-tube type wire markers.
- e. Contractor shall establish a control and instrumentation conductor and cable identification system acceptable to Engineer.

G. Wiring Devices:

1. Flush mount wiring devices in concealed conduit system.
2. Surface mount wiring devices in exposed conduit systems.
3. Provide extension rings to bring outlet boxes flush with finished surface.
4. Clean debris from outlet boxes.
5. Install products in accordance with manufacturer's instructions.
6. Install devices plumb and level.
7. Install switches with OFF position down.
8. Install receptacles with grounding pole on bottom.
9. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.
10. Connect wiring devices by wrapping conductor around screw terminal.
11. Use jumbo size plates for outlets installed in masonry walls.
12. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
13. Install wall switch 48 inches above finished floor.
14. Install convenience receptacle 24 inches above finished floor.
15. Inspect each wiring device for defects.
16. Operate each wall switch with circuit energized and verify proper operation.
17. Verify that each receptacle device is energized.
18. Test each receptacle device for proper polarity.
19. Test each GFCI receptacle device for proper operation.
20. Adjust devices and wall plates to be flush and level.

H. Grounding Materials:

1. Coordinate installation with other disciplines.
2. Verify that final backfill and compaction has been completed before driving rod electrodes.
3. Install Products in accordance with manufacturer's instructions.
4. Install rod electrodes at locations indicated. Install additional rod electrodes as required to achieve specified resistance to ground.
5. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing.

6. Provide bonding to meet Regulatory Requirements.
7. Install ground cable through building walls within 3' below finish grade and prepare a water stop.
8. Install ground rods and cables as deep in earth as possible and as far from structure as possible, not closer than 6".
9. All branch circuit and feeder circuits to include a copper ground conductor in addition to the conduit ground connection.
10. Connect ground conductors to equipment by ground lugs or clamps.
 - a. If no ground bus or terminal is provided and enclosure is not explosion-proof or submersible provide a clamp type lug under a permanent assembly bolt or by grounding locknuts or bushings.
 - b. If an explosion-proof or submersible enclosure is not provided with grounding means, provide an adjacent junction box with a ground lug.
 - c. Bond grounding system to station piping by connection to the first flange inside the building on either a suction or discharge pipe which will form a good ground connection:
 1. Drill and tap the flange.
 2. Provide a bolted connection.
 3. Bond with a copper bar or strap.
 - d. Form ground conductors on equipment to the contours of the equipment.
 - e. Install main ground cables with encased underground conduit banks in earth at least 3" below 1 corner of the duct bank.
 - f. Bond ground cables in underground circuits to main ground cables at each manhole, handhole, and vault.

I. Luminaries

1. Install in the general locations and arrangement indicated on drawings.
2. Align luminaries in rows vertically and horizontally except as otherwise required.
3. Install clear of pipes, mechanical equipment, structural openings, indicated future equipment and structural openings, and other obstructions.
4. Adjust luminaries location as required by field conditions.
5. Examine each luminaries to determine suitability for lamps specified.
6. Install in accordance with manufacturer's instructions.
7. Install suspended luminaries using pendants supported from swivel hangers. Provide pendant length required to suspend luminaries at indicated height.
8. Support luminaries larger than 2x4 foot size independent of ceiling framing.
9. Locate recessed ceiling luminaries as indicated on reflected ceiling plan.
10. Install surface mounted luminaries and exit signs plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
11. Install recessed luminaries to permit removal from below.
12. Install accessories furnished with each luminaire.
13. Bond products and metal accessories to branch circuit equipment grounding conductor.
14. Install specified lamps in each luminaire emergency lighting unit and exit sign.
15. Operate each luminaire after installation and connection. Inspect for proper connection and operation.
16. Aim and adjust luminaries as directed.

17. Relamp luminaries that have failed lamps at Substantial Completion.
18. Clean electrical parts to remove conductive and deleterious materials.
19. Remove dirt and debris from enclosure.
20. Clean photometric control surfaces as recommended by manufacturer.
21. Clean finishes and touch-up damage.

J. Lighting Panel

1. Wall mount in unfinished areas, flush mount in finished areas.
2. Install lighting panel in accordance with NEMA PB 1.1.
3. Install lighting panel plumb. Provide supports. Height: 6 ft. to top of lighting panel; install lighting panel taller than 6 ft. (2M) with bottom no more than 4 in. above floor.
4. Provide filler plates for unused spaces in lighting panels.
5. Provide typed circuit directory for each branch circuit in lighting panel. Revise directory to reflect circuiting changes required to balance phase loads.
6. Measure steady state load currents at each lighting panel feeder; rearrange circuits in the lighting panel to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
7. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

K. Networking – Ethernet/IP cabling

1. Install sufficient networking cable, as shown in the contract drawings, to provide a complete networked system.
2. Terminate all wiring with RJ-45 connectors rated for Cat 5e cable transmissions.
3. Test every communication cable, and provide a testing certificate with the results.

3.02 FIELD QUALITY CONTROL

A. Low Voltage Cable Testing

1. Test 600 V power cables for continuity and freedom from short circuits and ground, except where grounding is intentional immediately after installation.
2. Test all circuits with a 500 V megger or its equivalent.
3. Replace conductors which read less than 1.5 Megohms between conductors and ground.

3.03 PROTECTION AND STORAGE

A. Protection of equipment during storage:

During construction, all electrical equipment shall be protected against absorption of moisture, and metallic components shall be protected against corrosion. This protection shall be provided immediately upon receipt of the equipment and shall be maintained continuously. Any means necessary shall be used to protect the equipment at the Contractor's expense.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Protection
- B. Clearing and Grubbing
- C. Topsoil removal and storage
- D. Disposal of Waste Materials

1.02 SUBMITTALS

- A. Certifications and Testing consistent with Section 01 33 00 Submittals

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 PREPARATION

- A. Protection
 - 1. Provide barricades, coverings, and other protection necessary to prevent damage to existing improvements.
 - 2. Protect improvements on adjoining properties as well as those on Owner property.
 - 3. Protect existing trees and other vegetation to remain against damage.
 - a. Do not smother trees by stockpiling construction materials or excavated materials within drip line.
 - b. Avoid foot or vehicular traffic or parking of vehicles within drip line.
 - c. Provide temporary protection as required to prevent damage to trees and vegetation to be left in place.
 - d. Water trees and other vegetation which are to remain within limits of construction works as required to maintain their health during period of construction operations.
 - e. Provide protection for roots over 1-1/2 IN diameter that are cut during construction operations.
 - 1) Coat cut faces with an emulsified asphalt, or other acceptable coating especially formulated for horticultural use on cut or damaged plant tissues.

- 2) Temporarily cover all exposed roots with wet burlap to prevent roots from drying out.
- 3) Provide earth cover as soon as possible.
- 4) Repair or replace trees and vegetation damaged by construction operations.
 - (a) Repair to be performed by a qualified tree surgeon.
 - (b) Remove trees which cannot be repaired.
 - (c) Replace with new trees of minimum 4 IN caliper.
 - (d) Repairs or replacements are to be completed in a manner acceptable to Owner at no additional expense to Owner.

B. Clearing and Grubbing

1. Clear from surface of existing ground all trees and shrubs marked for removal, brush, downed timber, rotten wood, heavy growth of grass and weeds, vines, rubbish and debris.
2. Grub (remove) all stumps, roots, root mats, logs and debris encountered within limits of construction.
 - a. In cut areas, totally grub.
 - b. In fill areas, where fill is less than 3 FT totally grub ground.
 - c. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 IN loose depth, and thoroughly compact to a density equal to adjacent original ground.
 - d. Where fill is 3 FT or more in depth, stumps may be left no higher than 6 IN above existing ground surface.

C. Topsoil

1. Strip topsoil to whatever depths encountered, in manner to prevent intermingling with underlying subsoil or objectionable material.
 - a. Remove heavy growths of grass before stripping.
 - b. Where trees are indicated to be left standing, stop topsoil stripping sufficient distance from such trees to prevent damage to main root system.
 - c. Topsoil is defined as organic surface soil reasonably free of subsoil, clay lumps, stones and other objects over 2 IN diameter, and without weeds, roots and other objectionable material.
2. Stockpile topsoil where directed by Owner
 - a. Construct storage piles to freely drain surface water.
 - b. Seed or cover storage piles to prevent erosion.

D. Disposal of Waste Materials

1. Contractor shall remove all waste materials from site and dispose as appropriate.

END OF SECTION

SECTION 31 23 00

EARTHWORK FOR STRUCTURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Excavating, filling, backfilling, compacting, and grading below and adjacent to structures as shown on the Drawings and specified herein.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (Modified Proctor).
- B. Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction

1.03 DEFINITIONS

- A. Excavation: The term "excavation," as used herein, consists of removal of material encountered to elevations indicated and as necessary to remove unsuitable material, and subsequent disposal of materials removed.
- B. Unauthorized Excavation: The term "unauthorized excavation," as used herein, consists of inadvertently or purposely removing materials beyond indicated elevations or dimensions without specific direction of Owner. Unauthorized excavation as well as remedial work resulting from unauthorized excavation, as directed by Owner, shall be at Contractor's expense.
 - 1. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Owner.
 - 2. Unauthorized excavation, including deposition of additional backfill material and other work resulting from slides, cave-ins or remedial work, shall be at Contractor's expense.
- C. Subgrade: The term "subgrade," as used herein, designates the undisturbed earth or compacted soil layer immediately below proposed foundation, slab, fill, or backfill. Note that the term "subgrade" may refer to different surfaces as construction progresses.
- D. Structure: The term "structure," as used herein, refers to retaining walls, buildings, tanks, or other manmade stationary features occurring above or below ground surface, excluding pipes and utilities addressed in Section 31 23 33 Earthwork for Utilities.
- E. Fill: The term "fill," as used herein, includes materials placed in order to raise the grade above existing contours.

- F. Backfill: The term "backfill," as used herein, includes materials placed in authorized or unauthorized excavations.
- G. Foundations: The term "foundations," as used herein, refers to footings, foundation walls, mat foundations, and any other heavily loaded support placed directly on soil.
- H. Slabs: The term "slabs", as used herein, refers to lightly loaded slabs-on-grade, walks, stoops, aprons, and similar flatwork.

1.04 SUBMITTALS

- A. Certificates and Testing for the following:
 - 1. Independent laboratory analysis of all material proposed for fill and backfill. Report shall include gradation, moisture density relationships, optimum moisture content, and maximum density of all materials to be compacted.
 - 2. Subgrade inspection reports, including verification that the soil conditions encountered and subgrade preparation performed provide values equal or superior to the design criteria outlined on the drawings.
 - 3. In-place density tests for compacted fill and backfill, and recompacted scarified native material.
- B. Dewatering Plan: Submit proposed method of maintaining groundwater below excavations and meeting requirements outlined in Section 3.02C of this specification.

1.05 QUALITY ASSURANCE

- A. Codes and Standards: Comply with all applicable local, state and Federal rules, regulations and ordinances concerning sloping of excavation, trenching, and safety of workers, including the latest OSHA requirements.
- B. Testing Service: The Contractor will employ and pay for a qualified independent geotechnical testing laboratory to perform soil and compaction testing during earthwork operations. Contractor will coordinate scheduling and provide necessary means to assure cooperation with testing firm. Work and/or materials which are defective shall be repaired and re-tested at the Contractor's expense.
- C. Verify that finished grade and slopes are within 0.1 ft. of grades indicated.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

- A. General: All fill material, regardless of intended use category, must be clean and free from organic matter, roots, brush or other vegetation, trash, brick, debris, frozen material, or

other detrimental substances, and rocks or unbroken lumps larger than 6", and must be approved by the Owner prior to placement.

1. On-Site Materials: On-site soil meeting the requirements of Paragraph 2.01.A may be used as fill or backfill in landscape areas, but shall not be used as fill or backfill below or adjacent to structures unless processed to meet the requirements of Paragraph 2.01.B.
- B. Structural Fill: Structural Fill may be imported or processed on-site material. In addition to the requirements of Paragraph 2.01.A above, it shall meet the following requirements and be approved by the Owner:
 1. Gradation (ASTM C136):

	Percent finer by weight:
4"	100
No. 4 Sieve	50 - 100
No. 200 Sieve	25 (max)
 2. Maximum expansive potential: 1.5% (Measured on a sample compacted to 95% Standard Proctor at 3% below optimum moisture content, confined under a 100 psf surcharge, and submerged.)
 3. Maximum soluble sulfates: 0.10%
- C. Aggregate Base Course: The material proposed for use shall meet the Colorado Department of Transportation (CDOT) specifications for Class 6 Aggregate Base Course.
- D. Sand: Clean, natural sand.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Protection:
 1. Protect existing surface and subsurface features on site and adjacent to site as follows:
 - a. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing items indicated to remain in place.
 - b. Protect and maintain benchmarks, monuments or other established reference points and property corners. If disturbed or destroyed, replace at Contractor's expense to full satisfaction of Owner.
 - c. Verify location and existence of utilities. Omission or inclusion of utility items does not constitute non-existence or definite location. Secure and examine local utility records for location data.
 - 1) Take necessary precautions to protect existing utilities from damage due to any construction activity. Repair damages to utility items at Contractor's expense.
 - 2) Active Utilities: Do not interrupt existing utilities serving facilities occupied and used by adjacent properties, except when permitted in writing by the local utility company, and then only after acceptable temporary utility services have been provided. Remove or relocate utilities only as indicated or specified.

- 3) Inactive Utilities: Report inactive or abandoned utilities encountered in excavating or grading operations, and remove, plug, or cap as required. In the absence of specific requirements, plug or cap such utility lines as required by local rules or regulations.
 - d. Maintain roadways, sidewalks, curbs, gutter, structures, and pavement free of damage. Any damaged items shall be repaired to original condition at Contractor's expense.
 - e. Provide full access to public and private premises, fire hydrants, street crossings, sidewalks and other points to prevent serious interruption of travel.
 - f. Maintain stockpiles and excavation in such a manner to prevent inconvenience or damage to structures on site or on adjoining property.
 - g. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.
 - 2. Protection of Structures: Prevent new and existing structures from becoming damaged due to construction operations or other reasons. Prevent subgrade under new and existing foundations from becoming wet or undermined during construction due to presence of surface or subsurface water or due to construction operations.
- B. Dust Control: Provide dust control as required to alleviate dust nuisance to adjacent properties.
- C. Unanticipated Conditions: Notify the Owner immediately upon finding evidence of previous structures, fill materials which penetrate below designated excavation elevations, or other conditions which are not shown or which cannot be reasonably assumed from existing surveys and geotechnical reports. Secure the Owner's instruction before proceeding with further work in such areas.

3.02 EXCAVATION

- A. General:
- 1. Excavate and remove all existing material below proposed structures to elevation indicated, and horizontal distance shown for the particular structure.
 - 2. Make excavations large enough for working space, forms, dampproofing, waterproofing, and inspection.
 - 3. Minimize disturbance of native soils at bottom of excavation.
 - 4. Place foundations or backfill as soon as possible after excavation is completed, inspected, and approved.
 - a. When freezing temperatures may be expected, do not excavate to full depth unless foundations or fill material can be placed immediately after excavation has been completed and approved.
 - b. Until concrete or fill material is placed, protect approved subgrade from becoming loose, wet, frozen, or soft due to weather, construction operations or other reasons.

- c. If subgrade becomes frozen, loose, wet, or soft before construction is placed thereon, remove unacceptable material, and replace with approved compacted material as directed by Owner.
 - 5. Use of explosives: Blasting with any type of explosive is prohibited.
- B. Shoring: Shore, slope, or brace excavations as required to prevent them from collapsing. Remove shoring as backfilling progresses, but only when banks are stable and safe from caving or collapsing.
- C. Drainage and Dewatering:
 - 1. Include cost of dewatering in original proposal.
 - 2. During construction, control grading so that ground is sloped to prevent water from running into excavated areas or damaging existing structures.
 - 3. Where foundations, slabs, fill, or backfill are to be placed, maintain excavations free of water. Keep water a minimum of 1 FT below the bottom of the deepest excavation.
 - 4. Provide dewatering as required to keep excavated spaces clear of water during construction:
 - a. Should groundwater water be encountered, notify Engineer.
 - b. Where groundwater is, or is expected to be encountered during excavation, provide dewatering system to prevent softening and disturbance of subgrade and backfill material, to allow foundations and backfill material to be placed in the dry, and to maintain a stable excavation side slope.
 - c. Perform soils investigation before beginning excavation and determine where groundwater is likely to be encountered during excavation.
 - 5. The Contractor shall be responsible for obtaining construction dewatering discharge permit and complying with all applicable water quality standards.
 - 6. Keep dewatering system in operation until dead load of structure exceeds possible buoyant uplift force.
- D. Inspection and Subgrade Stabilization:
 - 1. Notify Owner as soon as excavation is completed in order that undisturbed native soils may be inspected.
 - 2. If materials at bottom of excavation elevations are determined to be unsuitable, continue excavation until suitable materials are encountered and backfill over-excavation as directed by Owner
 - 3. Where backfill is required below the structure bearing elevation, extend backfill a minimum of 1 foot horizontally for each 1-foot thickness of backfill, and compact as specified.

3.03 FILL AND BACKFILL

- A. General: Obtain approval of fill and backfill material, as well as optimum moisture and maximum density properties for proposed materials prior to placing the material.

- B. Fill:
1. Subgrade preparation:
 - a. Clear and grub area to receive fill.
 - b. Remove all topsoil.
 - c. Scarify subgrade to a minimum depth of 12 IN. Moisture condition and recompact as specified.
 - d. Obtain inspection and approval of the prepared subgrade prior to proceeding.
 2. Provide approved fill material. Do not place material in layers greater than 8-inches loose thickness where compacted by heavy equipment, nor 4-inches where compacted by hand-operated tampers.
 3. Place layers horizontally and compact each layer prior to placing additional fill. Control moisture for each layer as necessary to meet requirements of compaction.
 4. Construct embankments and fills at locations and to line and grade indicated. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed work.
- C. Backfill:
1. Subgrade preparation:
 - a. Scarify subgrade to a minimum depth of 12 IN below slab or footing bearing elevation. Minimize disturbance of exposed subgrade. Moisture condition and recompact any areas which are disturbed.
 - b. Obtain inspection and approval of the prepared subgrade prior to proceeding.
 2. Provide approved material. Do not place material in layers greater than 8-inches loose thickness where compacted by heavy equipment, nor 4-inches where compacted by hand-operated tampers.
 3. Place layers horizontally and compact each layer prior to placing additional backfill by means of equipment of sufficient size and proper type to obtain specified density.
 - a. Use vibratory equipment to compact granular material, do not use water.
 - b. Control moisture for each layer as necessary to meet requirements of compaction.
 4. Do not start backfilling until concrete forms have been removed, trash removed from excavations, and concrete finishing completed.
 5. Do not backfill against walls until concrete has reached specified 28-day compressive strength.
 6. Place fill evenly on all sides of grade beams, walls, and structures or provide bracing.

3.04 EARTHWORK AT SLABS, RING BEAM AND UNDER TANK BASE

- A. Prepare subgrade at slabs-on-grade in accordance with the following.
1. Clear and grub area.
 2. Remove all topsoil.

3. Scarify subgrade to a minimum depth of 12 IN. Moisture condition and recompact as specified.
 4. Obtain inspection and approval of the prepared subgrade prior to proceeding.
- B. Fractured bedrock under the ring beam shall be inspected to ensure its free from fractures. All fractures and cracks if identified shall be filled with CLSM concrete.
 - C. Min 4 IN of CLSM concrete shall be placed above formation level before pouring concrete of the ring beam.
 - D. Where achieving adequate compaction is difficult under the tank base, then Controlled Low Strength Material (CLSM), i.e., a lean, sand-cement slurry (“flowable fill”) or a similar material should be used for backfilling.
 - E. Place and compact CDOT Aggregate Base Course in loose lifts not exceeding 8 IN thick and be compacted with the requirements in Section 3.05 as below.
 - F. Place and compact a 6 IN layer of sand. The sand cushion shall be at least 6 IN thick and shall be in accordance with the Tank Manufacturer's requirements.

3.05 COMPACTION

- A. General:
 1. Extent of compaction testing will be as necessary to assure compliance with Specifications. Such testing will be performed by the Testing Service.
 - a. Tests shall be performed at locations as directed by the Owner.
 - b. Testing Service personnel are to be on site during continuous backfill and compaction operation.
 2. Moisture density relations are required for all materials that are to be compacted, prior to commencing compaction.
- B. Material, Compaction Density, and Moisture Content Requirements:
 1. Assure by testing that the compaction densities and moisture content comply with the following requirements:

Location	Depth of Fill or Backfill	Material	Minimum Compaction Requirements
Below Foundations And Tank Base	Any	Structural Fill	95% ASTM D1557 within 2% of optimum moisture content
Below Slabs, Sidewalks, and Roadways	Any	Structural Fill	95% ASTM D1557 within 2% of optimum moisture content
Landscape Areas	Any	Approved Fill	90% ASTM D1557 within 2% of optimum moisture content

3.06 GRADING

- A. General: Uniformly grade areas within project limits, including adjacent transition areas. Smooth finish surface within specified tolerances, compact with uniform levels or slopes between points where elevations or contours are indicated or between such points and existing grades.
- B. Grade areas adjacent to structures to drain away from structures. Provide a minimum fall of 10-inches in first ten feet for unpaved areas unless indicated otherwise on drawings.
- C. Verify compaction of graded areas to depths and densities specified.

3.07 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials, including materials not allowed for fill or backfill, trash, and debris, and dispose of legally off Owner's property at Contractor's expense.

3.08 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
 - 1. Erosion and Rutting: Where completed areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density.
 - 2. Settling: Where settling is measurable or observable during general project warranty period, remove surface, add backfill material, and compact. Restore appearance, quality, and condition of surface to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

END OF SECTION

SECTION 31 23 33

EARTHWORK FOR UTILITIES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Trenching, backfilling, and compacting for all underground utilities as shown on the Drawings and specified herein.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. D1557 – Test Methods for the Moisture Density Relations of Soils and Soil Aggregate Mixtures, Using a 10 LB Hammer and an 18 IN drop
 - 2. D4253 – Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
 - 3. D4254 – Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

1.03 SUBMITTALS

- A. Certifications and testing consistent with Section 01 33 00 Submittals and including:
 - 1. Furnish copy of certifications on granular materials for trench bedding and stabilization.
 - 2. Furnish copy of density reports.

1.01 JOB CONDITIONS

- A. Verify location and existence of underground utilities.
- B. For connections to existing piping, verify exact material, diameter, alignment, joint, elevation, etc. of existing piping.
- C. Take necessary precautions to protect existing utilities from damage due to any construction activity. Repair damages to utility items at own expense. Assess no cost to Owner, Engineer, or auxiliary party for any damages.
- D. Avoid overloading or surcharge a sufficient distance back from edge of excavation to prevent slides or caving. Maintain and trim excavated materials in such manner to be as little inconvenience as possible to public and adjoining property owners.
- E. Provide full access to public and private premises, to fire hydrants, at street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.

- F. Protect and maintain benchmarks, monuments or other established points and reference points and, if disturbed or destroyed, replace items to full satisfaction of Owner and controlling agency.
- G. Contractor shall maintain one (1) 14-foot lane width for emergency vehicles access to/from the fire cache.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

- A. Granular Bedding Material: Graded aggregate product (Pea Gravel) which will all pass a 3/8 IN sieve and not more than 5 percent of which will pass a No. 200 sieve.
- B. Backfill material
 - 1. Free of rock cobbles, roots, sod or other organic matter, and frozen material. Native soils from excavation that contain no rock larger than 1-inch at greatest dimension.
 - 2. Moisture content at time of placement to be as follows:
 - a. Under roadway crossings or pavements, moisture content to be 3 percent plus/minus of optimum moisture content.
 - b. In all other areas of trench construction, the moisture content will be adjusted by either the drying of the material or wetting of the material to a percentage required to obtain the compaction as specified.
- B. Subgrade Stabilization
 - 1. Provide stabilization bedding material uniformly graded from 1-1/2 IN to 3/4 IN rock.
- C. All imported materials shall be certified weed and seed free.

2.02 DETECTABLE UTILITY MARKING TAPE

- A. Plastic:
 - 1. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
 - 2. Thickness: Minimum 4 mils.
 - 3. Width: 6 inches.
 - 4. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
 - 5. Manufacturers and Products:
 - a. Reef Industries: Terra Tape.
 - b. Allen; Markline.
- B. Metallic:
 - 1. Solid aluminum foil, visible on unprinted side, encased in protective high visibility, inert polyethylene plastic jacket.
 - 2. Foil Thickness: Minimum 5.5 mils.

3. Width: 3 inches.
 4. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
 5. Joining Clips: furnished by tape manufacturer.
 6. Manufacturers and Products:
 - a. Reef Industries: Sentry Line®
 - b. Or equal.
- C. Color: In accordance with APWA Uniform Color Code for Temporary Marking of Underground Facilities.

Color ^a	Facility
Red	Electric power lines, cables, conduit, and lighting cable
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, oil, steam, petroleum, or gaseous materials
Green	Sewers and drain lines
Blue	Water, irrigation, and slurry lines
^a As specified in ANSI Z53.1, Safety Color Code.	

2.03 NON-DETECTABLE UTILITY MARKING TAPE

- A. In addition to detectable utility marking tape, provide continuous non-detectable utility marking tape attached to each pipe. See Section 33 01 02.

PART 3 – EXECUTION

3.01 EXCAVATION FOR APPURTENANCES

- A. Excavate for appurtenant piping structures to provide at least 12 IN (minimum) clear distance between outer surface and embankment.
- B. See Section 31 23 00 Earthwork for Structures for applicable requirements of excavation, filling and backfilling.

3.02 TRENCH EXCAVATION

- A. Excavate trenches by open cut method to depth necessary to accommodate work.
- B. Do not open greater length of trench than can be effectively utilized under existing conditions. Schedule work and order materials so that trenches are not left open for a longer period than is reasonably necessary. Any trench or portion of trench, which is opened and remains idle for two calendar days, or longer, as determined by the Owner, may be directed to be immediately refilled, without completion of work, at no additional cost to Owner. Said trench may not be reopened until Owner is satisfied that work associated with trench will be prosecuted with dispatch.

C. Observe following trenching criteria

1. Trench size. Excavate only sufficient width to accommodate free working space with a minimum clearance of 6 IN on each side of the pipe. In no case shall trench width at top of pipe or conduit exceed outside diameter of utility service by the following dimensions:

<u>Overall Diameter of Utility Service</u>	<u>Excess Dimension</u>
Less than 8 IN	12 IN
8 IN to 32 IN	16 IN
More than 33 IN	24 IN

2. Where soil conditions permit, cut trench walls vertically from bottom of trench to 1 FT above top of pipe, conduit, or utility service.
3. Brace and sheet trenches as soil conditions dictate and in full compliance with OSHA requirements. Do not remove sheeting until backfilling has progressed to the stage that no damage to piping, utility service, or conduit will result due to removal.
4. Brace trenches running near walls or columns, to prevent any settlement or other disturbance of walls or columns.

D. Trenching for electrical or communications utility installations

1. Observe the above requirements with following modifications for electrical installations.
2. Do not open more than 600 lineal FT of trench in exterior locations for trenches more than 12 IN but not more than 30 IN wide.
3. Any length of trench may be opened in exterior locations for trenches which are 12 IN wide or less.
4. Do not over excavate trench.
5. Trenching depths for electrical or communications work are not stated on drawings. Cut trenches with a minimum 30 IN cover, unless otherwise specified.

E. Drainage and Dewatering:

1. Include cost of dewatering in original proposal.
2. During construction, control grading so that ground is sloped to prevent water from running into excavated areas or damaging existing structures.
3. Where pipelines, manholes, structures, vaults, utilities, or backfill are to be placed, maintain excavations free of water. Keep water a minimum of 1 FT below the bottom of the deepest excavation.
4. Provide dewatering as required to keep excavated spaces clear of water during construction:
 - a. Should groundwater water be encountered, notify Engineer.
 - b. Where groundwater is, or is expected to be encountered during excavation, install dewatering system to prevent softening and disturbance of subgrade and backfill material, to allow foundations, bedding and backfill material to be placed in the dry, and to maintain a stable excavation side slope.
 - c. Perform soils investigation before beginning excavation and determine where groundwater is likely to be encountered during excavation.

5. The Contractor shall be responsible for obtaining construction dewatering discharge permit and complying with all applicable water quality standards.
6. Keep dewatering system in operation until dead load of structure exceeds possible buoyant uplift force.

3.03 PREPARATION OF TRENCHES FOR PIPE LAYING

- A. Backfill any over-excavation with bedding material.
- B. In case of rock excavation, carry excavation minimum of 6 IN below pipe and backfill with bedding material. Form bell holes in trench such that only barrel of pipe is supported by bedding material.
- C. Subgrade stabilization: Provide subgrade stabilization material when directed by the Owner in accordance with these specifications. Observe the following requirements when unstable trench bottom materials are encountered.
 1. Notify Owner when unstable materials are encountered and define by Drawing station locations and limits. Owner will evaluate the trench conditions and determine the quantity of stabilization material and the amount of additional compensation.
 2. Where unstable trench bottom has been caused by Contractor's failure to dewater, rainfall, or Contractor operations; remove unstable material and replace with subgrade stabilization material at Contractor's expense.

3.04 BACKFILLING

- A. Do not backfill until tests to be performed on system show system is in full compliance to specified requirements.
- B. Compact pipe zone bedding up to 12 IN above to of pipe or conduit.
 1. Place backfill in lifts not exceeding 8 IN (loose thickness).
 2. Hand place, shovel slice, and pneumatically tamp all bedding (pipe zone) material.
 3. Observe specific pipe or conduit manufacturer's recommendations regarding methods of backfilling and compaction.
 4. Ensure compaction of each lift to requirements stated in these specifications.
- C. Backfill above pipe zone: Perform remaining backfill in accordance with the following:
 1. Place backfill in lift thicknesses capable of being compacted to densities specified.
 2. Observe specific pipe or conduit manufacturer's recommendations regarding methods of backfilling and compaction.
 3. Exercise extreme care in backfilling operations to avoid displacing joints and appurtenances or causing any horizontal or vertical misalignment, separation, or distortion. Repair damages, distortions, or misalignments to full satisfaction of Engineer.
- D. Water flushing for consolidation will not be permitted.

- E. Backfilling for electrical installations
 - 1. Observe the above requirements with following modifications for electrical installation.
 - a. Observe notes and details on electrical drawings for fill in immediate vicinity of direct burial cables.

3.05 COMPACTION AND TESTING

- A. Compaction requirements: Place and ensure backfill and fill materials to achieve an equal or "higher" degree of compaction than undisturbed materials adjacent to the work; however, in no case shall degree of compaction be less than "Minimum Compaction" specified.
- B. Unless noted otherwise on drawings or specified by other sections of these specifications, comply with following trench compaction criteria:

LOCATION	DENSITY
1. Bedding Materials - all areas	95% ASTM D1557 within 2% of optimum moisture content
2. Fill and Backfill under utility vault structures	95% ASTM D1557 within 2% of optimum moisture content
3. Fill and Backfill under pavements, sidewalks, roadways surfaces, and within highway right-of-ways	95% ASTM D1557 within 2% of optimum moisture content
4. Fill and Backfill under turf, sodded, plant seeded, non-traffic areas	90% ASTM D1557 within 2% of optimum moisture content

- C. Testing
 - 1. See Section 01 45 00 Quality Control and Section 01 45 29 Testing and Laboratory Services.
 - 2. Moisture and density tests will be performed by Contractor's testing laboratory and will be taken at a minimum of one test every 24 IN depth per 75 lineal FT of trench; and one test every 12 IN lift per 2,500 SF for backfill at structures.

3.06 GRADING

- A. General: Uniformly grade areas within project limits, including adjacent transition areas. Smooth finish surface within specified tolerances, compact with uniform levels or slopes between points where elevations or contours are indicated or between such points and existing grades.
- B. Grade areas adjacent to structures to drain away from structures. Provide a minimum fall of 12 IN in first ten feet for unpaved areas unless indicated otherwise on drawings.
- C. Verify compaction of graded areas to depths and densities specified.

3.07 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove and disposed off-site waste materials, including materials not allowed for fill or backfill, trash, and debris, and dispose of legally from Owner's property at Contractor's expense.
- B. Excess materials shall become the property of the Contractor and shall be removed and disposed off-site from Owner's property at Contractor's expense.

END OF SECTION

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SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Chain link fence

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. A90 – Test for Weight of Coating on zinc-coated (Galvanized) Iron or Steel Articles
 - 2. A121 – Zinc Coated (Galvanized) Steel Barbed Wire
 - 3. A123 – Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars and Strip
 - 4. A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 5. A428 – Weight of Coating on Aluminized - Coated Iron or Steel Articles
 - 6. A491 – Aluminum-Coated Steel Chain-Link Fence Fabric
 - 7. A569 – Specification for Steel, Carbon (0.15 maximum, percent), Hot Rolled Sheet and Strip, Commercial Quality
 - 8. A570 – Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality
 - 9. A585 – Aluminum-Coated Steel Barbed Wire
 - 10. E8 – Tension Testing of Metallic Materials
- B. Comply with standards of Chain Link Manufacturers Institute for "Galvanized Steel Chain Link Fence Fabric and Accessories" except as otherwise indicated
- C. Provide fence components produced by a single manufacturer

1.03 SUBMITTALS

- A. Certifications and Testing consistent with Section 01 45 00 Quality Control.
- B. Shop Drawings consistent with Section 01 33 00 Submittals and including
 - 1. Drawings at a minimum scale of 1 IN = 40 FT, including:
 - a. Fence layouts, post locations, gates, details illustrating fence height, location and sizes of posts, rails, braces and footings
 - b. Hardware list

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Use only new materials. Pipe sizes indicated are commercial pipe sizes. Roll form section sizes are nominal outside dimensions.

- B. Hot-dip galvanize all iron or steel components after fabrication. Use galvanized and aluminized finish complying with following minimum requirements.
 - 1. Pipe: ASTM A123, 2.0 OZ zinc per SQ FT
 - 2. Roll form: ASTM A123, 2.0 OZ zinc per SQ FT
 - 3. Hardware and accessories: ASTM A153
 - 4. Fabric: ASTM A491, 0.40 OZ aluminum per SQ FT
 - 5. Barbed wire: ASTM A121 Class 3, 0.80 OZ zinc per SQ FT or ASTM A585 Class II, 0.30 OZ aluminum per SQ FT
- C. Chain link fabric: Woven 2 IN mesh of No. 9 gauge (0.148 IN) copper-bearing steel wire
- D. Line posts
 - 1. ASTM A569-Sch. 40
 - 2. Pipe diameter and weight
 - a. Fabric 5 FT and less: 2 IN OD, 2.28 LB/FT
 - b. Fabric 6 FT and over: 2-1/2 IN OD, 3.11 LB/FT
- E. Top and bottom rail: ASTM A569-Sch. 40 1.660 IN OD pipe weighing 2.27 LBS per lineal foot. Fit rails with expansion couplings of outside sleeve type. Rails continuous for outside sleeve type for full length of fence.
- F. Terminal, corner and pull posts, referred to herein as terminal posts
 - 1. Fabric height 5 FT and less: ASTM A569-Sch. 40 2-1/2 IN OD, 3.11 LB/FT
 - 2. Fabric height 6 FT and over: ASTM A569-Sch. 40 3 IN OD, 4.64 LB/FT
- G. Ties and clips: Provide either No. 9 gauge aluminum wire or aluminum straps.
- H. Bottom tension wire: Coiled No. 6 gauge (0.177 IN) aluminum-coated, steel wire with 0.40 OZ per SQ FT of uncoated wire surface with No. 11 gauge galvanized steel hog rings.
- I. Gate Posts
 - 1. ASTM A569-Sch. 40
 - 2. Gate leaf 6 FT and less: 3 IN OD, 4.64 LB/FT
 - 3. Gate leaf over 6 FT to 13 FT: 4 IN OD, 9.11 LB/FT
- J. Gate Anchorage to Structure
 - 1. Same material as posts
 - 2. Line posts: 8 IN x 3 IN x 1/2 IN
 - 3. Terminal posts: 6 IN x 6 IN x 1/2 IN

2.02 FABRICATION

- A. Gates
 - 1. Provide with galvanized steel hinges.
 - 2. Provide with lockable latch.

2.03 SOURCE QUALITY CONTROL

- A. Test related fence construction materials in accordance with the following standards
 - 1. Pipe: ASTM A569-Sch. 40 except hydrostatic testing requirements is waived.
 - 2. Roll form: ASTM A570, Grade 45
 - 3. Chain link fence fabric: ASTM E8 Tension Testing of Metallic Materials.
 - 4. Coating Testing per ASTM A90 and A428

PART 3 – EXECUTION

3.01 INSPECTION

- A. Verify suitability of areas to accept installation.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 DEMOLITION OF EXISTING FENCE AND APPURTENANCES

- A. Demolish all fence posts, concrete post supports, wire, gates, and appurtenances as indicated on the Drawings.
- B. All debris from demolition shall be removed off the site and disposed of in a legal manner. Any material which the Owner may wish to save or reuse shall be stored as per the Owner direction. Entire area shall be made broom clean.
- C. See Section 02 41 00 Demolition and Salvage.

3.03 ERECTION/INSTALLATION/APPLICATION

- A. Do not start fence installation before final grading is complete and finish elevations are established.
- B. Install fence in true and correct alignment with posts vertical.
- C. Drill holes in firm, undisturbed or compacted soil, not less than 3 IN deeper than bottom of posts.
- D. Set all yard fence posts in concrete footings with crowned, steel troweled tops of following minimum dimensions. See Section 03 30 00 Cast-In-Place Concrete.
 - 1. Hole Diameter: 12 IN minimum
 - 2. Hole Depth for Terminal, Corner, and Pull Posts: 48 IN minimum
 - 3. Hole Depth for Line Posts: 42 IN minimum
- E. Install fence tight, free of sags and bulges.
- F. Place fence with bottom edge of fabric 1 IN above grade. Correct minor irregularities in earth to maintain maximum 2 IN clearance.

- G. Space line posts at equal intervals not exceeding 10 FT on center.
- H. Provide terminal posts at ends of runs, changes in bracing assemblies between terminal posts and line posts adjacent to terminal posts.
- I. Provide expansion couplings in top rails at not more than 20 FT intervals.
- J. Anchor top rails to main posts with appropriate wrought or malleable fittings.
- K. Provide bracing assemblies at all end posts, both side of gate posts, corner posts, and pull posts.
 - 1. Locate compression members at mid-height of fabric.
 - 2. Extend diagonal tension members from compression members to bases of posts.
 - 3. Install so that posts are plumb when under correct tension.
- L. Pull fabric taut and secure to posts and rails.
 - 1. Install fabric on outside of fence, away from plant facility.
 - 2. Secure so that fabric remains in tension after pulling force is released.
 - 3. Secure to posts at not over 15 IN on center, and to rails at not over 18 IN on center, and to tension wire at not over 24 IN on center.
 - 4. Use U-shaped wire conforming to diameter of pipe to which attached, clasp pipe and fabric firmly with ends twisted at least two full turns.
 - 5. Bend ends of wire to minimize hazards to persons or clothing.
- M. Remove and replace all damaged or improperly installed fencing components to satisfaction of Engineer at no additional expense to Owner.
- N. Ties and Clips: Spare bands not greater than 15 IN O.C. for attachment to line posts and 18 IN O.C. for top and bottom rail attachment. For bottom tension wire attach hog ring to fence fabric at 24 IN O.C.
- O. Field-Coating
 - 1. Field coat as required for repair only.

END OF SECTION

SECTION 33 02 01

PIPE AND PIPE FITTINGS: GENERAL STATEMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Utility piping systems
- B. Pipe pressure testing
- C. Pipe cleaning and disinfection

1.02 RELATED SECTIONS

- A. Section 33 04 01 Openings and Penetrations in Construction
- B. Section 33 03 02 Ductile Iron Pipe

1.03 REFERENCES

- A. American National Standards Institute (ANSI)
 - 1. B16.3 – Malleable Iron Threaded Fittings Classes 150 and 300
 - 2. B16.5 – Pipe Flanges and Flanged Fittings NPS 1/2 IN through NPS 24 IN
 - 3. B16.9 – Factory-Made Wrought Steel Buttwelding Fittings
 - 4. B16.12 – Cast Iron Threaded Drainage Fittings
 - 5. B31.1 – Power Piping
 - 6. B31.3 – Chemical Plant and Petroleum Refinery Piping
 - 7. B31.9 – Building Services Piping
 - 8. B40.1 – Gauges - Pressure Indicating Dial Type - Elastic Element
- B. American Society for Testing and Materials (ASTM)
 - 1. A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - 2. A74 – Standard Specification for Cast Iron Soil Pipe Fittings
 - 3. A197 – Standard Specification for Cupola Malleable Iron
 - 4. A234 – Standard Specification for Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures
 - 5. A269 – Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
 - 6. A518 – Corrosion - Resistant High - Silicon Iron Castings
 - 7. A774 – As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures
 - 8. A778 – Welded, Unannealed Austenitic Stainless Steel Tubular Products
 - 9. B86 – Standard Specification for Zinc
 - 10. B306 – Copper Drainage Tube CDWV

11. C924 – Standard Practice for Testing Concrete Sewer Lines by Low Air Pressure Test Methods
12. C1103 – Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
13. D1248 – Polyethylene Plastics Molding and Extension Materials
14. D2241 – Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
15. D2467 – Standard Specification for Socket-Type Poly (Vinyl Chloride)
16. D2997 – Standard Specification for Centrifugally Cast Thermosetting Plastic Pipe
17. D3034 – Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
18. D4101 – Polypropylene Plastic Injection and Extrusion Materials
19. F1417 – Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
20. F679 – Standard Specifications for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
21. F794 – Standard Specification for Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sewer Pipe and Fittings based on Controlled Inside Diameter
22. F1417 – Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
23. F1476 – Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications

C. American Water Works Association (AWWA)

1. C110 – Ductile Iron and Gray Iron Fittings, 3 IN through 48 IN for Water and Other Liquids
2. C111 – Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fitting
3. C115 – Flanged Ductile Iron Pipe with Threaded Flanges
4. C600 – Installation of Ductile-Iron Water Mains and Their Appurtenances
5. C605 – Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
6. C606 – Grooved and Shouldered Joints
7. C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 IN through 60 IN
8. M11 – Steel Pipe: A Guide for Design and Installation

1.04 SUBMITTALS

A. Shop Drawings consistent with Section 01 33 00 Submittals and including:

1. Schedule showing pipe type, size, schedule of pipe, appurtenances, type of linings and coatings, cathodic protection
2. Exterior yard piping drawings (minimum scale 1 IN equals 10 FT) with information including:
 - a. Dimensions of piping lengths
 - b. Invert elevations of piping crossings
 - c. Acknowledgement of bury depth requirements

- d. Details of fittings, tapping locations, thrust blocks, restrained joint segments, harnessed joint segments, hydrants, and related appurtenances
 - e. Acknowledgement of designated valve or gate tag numbers, instrument tag numbers, pipe and line numbers
 - f. Line slopes and vents
 - 3. Interior piping drawings (minimum scale 1/8 IN equals 1 FT) with information including:
 - a. Dimensions of piping and end connections
 - b. Invert elevations
 - c. Location and type of pipe supports and anchors
 - d. Locations of valves
 - e. Details of fittings, tapping locations, equipment connections, flexible expansion joints, connections to equipment, and related appurtenances
 - f. Acknowledgement of valve and equipment tag numbers and instrument tag numbers
 - g. Provisions for expansion and contraction
 - h. Line slopes and air release vents
 - i. Rough-in data for equipment
 - 4. Copies of any manufacturer's written directions regarding material handling, delivery, storage and installation
 - 5. Technical product data on piping appurtenances
- B. Certifications and Testing consistent with Section 01 45 00 Quality Control and including:
- 1. Certification that products used meet standards referenced
 - 2. Certification of all welders
 - 3.
 - 4. Notification of time and date of piping pressure tests
 - 5. Copies of pressure test results on all piping systems, using the forms at the end of this section

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect pipe coating during handling using methods recommended by manufacturer. Use of bare cables, chains, hooks, metal bars or narrow skids in contact with coated pipe is not permitted.
- B. Prevent damage to pipe during transit. Repair abrasions, scars, and blemishes. If repair of satisfactory quality cannot be achieved, replace damaged material immediately.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Furnish piping, fittings and appurtenances in accordance with the Pipe Schedule as shown on the Drawings.
- B. Pipe sizes indicated are nominal inside diameter, unless noted otherwise.

- C. Use straight, round pipe.
- D. For temporary piping not specifically addressed in Piping Schedule, utilize materials, joints and fittings equal to those specified for similar applications of permanent construction.

2.02 COMPONENTS AND ACCESSORIES

- A. Insulating Components
 - 1. Insulating flanges
 - a. Flat faced 1/8 IN thick dielectric for temperatures up to 700 degF and pressures up to 1,000 psi
 - b. 1/32 IN wall thickness spiral wound mylar bolt sleeves
 - c. 1/8 IN thick high strength phenolic insulating washers
 - 2. Dielectric unions
 - a. Screwed unions rated at 250 PSI for pipe sizes 2-1/2 IN and over.
 - b. Provide with dielectric gaskets suitable for continuous operation at fluid temperatures to 240 deg. F.
 - 3. Dielectric Waterway Fittings
 - a. Grooved, threaded, or plain ends rated at 300 PSI for pipe sizes 1 IN through 8 IN
 - b. Carbon steel or ductile iron zinc-electroplated body with LTHS high temperature stabilized polyolefin polymer liner, suitable for continuous operation at fluid temperatures to 230 deg. F
 - c. Products manufactured by Victaulic (Style 47), or approved equal.
 - 4. Insulated Couplings
 - a. Products manufactured by Rockwell (Series 416), Dresser (Style 39), or others, and which meet these Specifications.
 - b. Insulated Reducing Couplings
 - c. Products manufactured by Rockwell (Series 417), Dresser (Style 39), or others, and which meet these Specifications.
- B. Couplings Restraint
 - 1. Provide restraining bolts on all couplings except those used on natural gas lines.
 - 2. Assure couplings and restraining bolts match test pressure rating of piping system.
- C. Protective Coating and Lining
 - 1. Where coatings, linings, paint, tests and other items are stated on schedules of service, pipe and fittings shall be included in referenced conditions.
 - 2. Ensure interior lining does not interfere with the operation of adjacent valves.
 - 3. Where specified in piping schedule, field paint pipe in accordance with Section 09 90 00 Painting.
- D. Pressure Gauges
 - 1. Provide on piping systems as shown on Drawings and specified.

2. Provide each gauge with a 250 LB stainless steel needle valve at the point of connection to equipment or piping. Provide a second valve if the gauge is panel mounted for use at a panel.
3. All components shall be suitable for service at 200 PSIG and 250 degF.
4. Pressure gauges shall be glycerine liquid filled. Provide glycerine filled gauge case.
5. Construct case, ring, bourdon tube, socket, angle valve, and connection tubing of stainless steel. Needle valves and connection tubing shall be 1/4 IN NPT on 2-1/2 IN dial size and 1/2 IN on 4-1/2 IN dial size.
6. Calibrate gauges at job site for pressure and temperature in accordance with manufacturer's instructions.
7. Unless otherwise required by codes, provide stem mounted or flush mounted units with dial diameter as follows:

Pipe Size	Dial Size
1-1/2 IN or less	2-1/2 IN
Larger than 1-1/2 IN	4-1/2 IN

8. Equip with white faces, black numerals and black pointers.
9. Provide pressure gauges with pressure range of 200 percent of normal operation. Furnish compound type gauges on equipment suction which show at least 30 IN HG vacuum and 15 PSI pressure.
10. Provide stainless steel pulsation dampeners on all gauge applications which involve positive displacement equipment.
11. Provide stainless steel protector to separate process fluid from the pressure element on all gauges except potable and recycle water and air systems. Furnish protector type listed below:

Gauge Application	Protector	Protector Fluid
All	Ashcroft Type 200 Diaphragm seal of equal.	Glycerine

12. Provide diaphragm seal housing of stainless-steel construction.
13. Assure gauge accuracy to within 1 percent.
14. Products manufactured by Ashcroft, Ametek/U.S. Gauge, or others, and which meet these Specifications.

E. Air Vents

1. Bronze vent try cock having same pressure rating as system to which it is connected.
2. For piping mains or branches, 1 IN or less, a 1/8 IN NPS bronze key operated vent may be used.

- F. Drain Valves
 - 1. Globe type, bronze compression stop with 3/4 IN hose thread end. Threaded or soldered connection.
 - 2. For drainage of volumes less than 1 gallon, 1/4 IN NPT bronze drain cock with packed stem may be used if container can be placed under valve.
- G. Floor, Wall and Ceiling Plates
 - 1. Split ring type of finished cast iron or steel construction with Chrome-plating for exposed finished surfaces.
- H. Dry Disconnect Couplings
 - 1. Provide dry disconnect couplings and adapters where indicated on Drawings.
 - 2. Adapters
 - a. Furnish male Adapters of size shown on Drawings. Provide Adapters with female NPT end connection for sludge and flush applications and male NPT end connection for chemical applications.
 - b. Construct Adapters for sludge applications from cast iron or steel.
 - c. Construct Adapters for chemical and PVC system applications from polypropylene.
 - 3. Couplers
 - a. Provide couplers with built-in valve and spring-loaded poppet which close automatically when disconnected. Furnish unit which is designed to remain with only one arm locked in closed position.
 - b. Construct couplers for sludge applications fabricated from material utilized for Adapters.
 - c. Construct couplers for chemical and PVC system applications from polypropylene with stainless steel arms and pins.
 - d. Gasket to be compatible with conveyed liquid.
 - 4. Provide dust caps for all Adapters.
 - 5. Products manufactured by OPW (Kamlock), or others, and which meet these Specifications.
- I. Cleanout Inspection Cover
 - 1. Provide with "CO" cast in cover.
 - 2. Products manufactured by Clow F-3375, Neenah R-1974-A, or others, and which meet these Specifications.
- J. Gauge Connector Plugs (Pressure/Temperature Taps)
 - 1. Nickel-plated brass, 500 PSI rated connector plugs with 1/2 IN NPS fittings
 - 2. Self-sealing gasketed orifice suitable for inserting a probe assembly from the dial-type insertion thermometer/pressure gauge
 - 3. Equip the orifice with a gasketed screw cap.
 - 4. Provide an extension equal to the insulation thickness for insulated systems.
 - 5. Products manufactured by Peterson Equipment Company (Pete's Plugs), Sisco (P/T Plug), or others, and which meet these Specifications.

- K. Rubber Expansion Joints
1. Capable of providing axial compression, axial elongation, transverse movement, lateral movement, and angular movement.
 2. When exposed to outdoor weather, provide UV protective coating on exterior of expansion joint.
 3. At all locations, provide anchors and guides to control direction and limit of movement.
 4. Single filled arch design.
 5. Match flange with adjacent flanges.
 6. Rated for test pressure specified in Piping Specification Schedule for each respective application.
 7. Products manufactured by Red Valve Company, Proco Products Inc., or approved equal.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Prior to installation, inspect and verify condition of piping and appurtenances. Installation constitutes installer's acceptance of product condition for satisfactory installation.

3.02 PREPARATION

- A. Correct defects or conditions which may interfere with or prevent a satisfactory installation.

3.03 EXTERIOR PIPING ERECTION/INSTALLATION/APPLICATION

- A. Unless otherwise shown on the Drawings, provide a minimum earth cover over exterior buried piping systems and appurtenances conveying water, fluids, or solutions subject to freezing as follows. Follow local codes and ordinances.
1. Waterline: 7 FT
 2. Electrical: 2.5 FT
- B. Enter and exit through structure walls, floors and ceilings using wall penetrations specified in Section 33 04 01 Openings and Penetrations and penetration detail on Drawings.
- C. Provide two flexible joints where a pipe enters or leaves a structure. Provide the first flexible joint with 2 FT from structure. Provide the second flexible joint not more than 6 FT nor less than 4 FT from first joint. Provide balance of piping with standard laying lengths.
- D. Laying Pipe in Trench
1. Excavate and backfill trench in accordance with Section 31 23 00 Earthwork for Structures and Section 31 23 33 Earthwork for Utilities.
 2. Clean each pipe length thoroughly and inspect for compliance to Specifications.
 3. Grade trench bottom and excavate for pipe bell and lay pipe on trench bottom or bedding material.

4. Provide gasket or joint material according to manufacturer's directions after joints have been thoroughly cleaned and examined.
 5. Except for first two joints, before making final connections of joints, 2 full sections of pipe shall have been previously installed with earth tamped alongside of pipe or final bedding material placed.
 6. Lay pipe in only suitable weather with good trench conditions. Never lay pipe in water except where approved by Engineer.
- E. Lining-up Push-on Joint Piping
1. Lay piping on route lines shown on Drawings.
 2. Deflect from straight alignments or grades by vertical or horizontal curves.
 3. Maximum offset between extended centerlines of any 2 adjacent pipe lengths is in strict accordance with the pipe manufacturers published literature on deflections and offsets.
 4. Provide special bends when specified or where required alignment exceeds allowable deflections stipulated.
 5. Provide shorter lengths of pipe in such length and number that angular deflection of any joint, as represented by specified maximum deflection, is not exceeded.
- F. Anchorage and Blocking
1. Provide reaction blocking, anchors, joint harnesses, or other acceptable means for preventing movement of piping caused by forces at buried or exposed piping tees, wye branches, plugs, or bends.
 2. Size thrust block as detailed on the drawings.
 3. Place concrete blocking so that it extends from fitting into solid undisturbed earth wall. Concrete blocks shall not cover pipe joints.
 4. Provide bearing area of concrete in accordance with details on Drawings.
 5. Provide insulating components where dissimilar metals are joined together.
- G. Provide underground alarming tape directly above each buried utility at a depth of 12 IN below final grade.
- H. Provide tracer wire over W piping.
- I. Provide insulating components where dissimilar metals are joined together.

3.04 INTERIOR PIPING ERECTION/INSTALLATION/APPLICATION

- A. Provide piping in vertical and horizontal alignment as shown on Drawings.
- B. Alignment of piping smaller than 4 IN may not be shown. However, provide according to Drawing intent and with ample clearance and allowance for:
1. Expansion and contraction
 2. Operation and access to equipment, doors, windows, hoists, moving equipment
 3. Headroom and walking space for working areas and aisles
 4. System drainage and air removal

- C. Enter and exit through structure walls, floors and ceilings using wall penetrations specified in Section 33 04 01 Openings and Penetrations and penetration detail on contract drawings.
- D. Provide vertical piping plumb and horizontal piping runs parallel with structure walls.
- E. Use methods of piping support as shown on Drawings and as required in Section 33 02 02 Pipe Support Systems. Where pipes run parallel and at same elevation or grade, they may be grouped and supported from common trapeze-type hanger, provided hanger rods are increased in size as specified for total supported weight. The pipe in the group requiring the least maximum distance between supports shall set the distance between trapeze hangers.
- F. Locate and size sleeves required for piping system. Arrange for chases, recesses, inserts or anchors at proper elevation and location.
- G. Use reducing fittings throughout piping systems. Bushings will not be allowed unless specifically approved by Engineer.
- H. Provide drain pans and piping from items of equipment where condensation may occur. Run drain piping to nearest floor drain or rainwater downspout. When running drain piping, avoid walkways and do not cause a tripping hazard. Slope all drain pipe toward the pipe exit. Provide traps with minimum 3 IN water seal or as required by equipment. Provide copper CDWV (ASTM B306) drain lines for galvanized steel drain pans and stainless -teel drain lines for all other applications, sized to match drain pan tap but in no case smaller than 3/4 IN.
- I. Unions
 - 1. Provide unions within 2 FT of each threaded end valve and at each piece of equipment.
 - 2. Provide in position which will permit valve or equipment to be removed without dismantling adjacent piping.
 - 3. Where mechanical type couplings are used, unions are not required. Couplings shall serve as unions.
 - 4. At flanged connections additional unions are not required.
- J. Provide easily accessible valved drain points for all utility piping to allow complete drainage of system.
- K. Where piping systems having both raised and flat faced flanges interface, provide full face gaskets.
- L. Coordinate work to avoid piping over electrical components or provide minimum 16 ga 316 stainless steel drain pans under piping to protect the electrical components. Slope and pipe these pans to drains.
- M. Anchorage and Blocking

1. Block, anchor, or harness exposed piping subjected to forces, in which mechanical, push on, flexible, or similar joints are installed, to prevent separation of joints.
- N. Expansion and Contraction
1. Provide anchors and guides to control direction and limit of movement.
 2. Loops and Offsets
 - a. Provide expansion loops and offsets where indicated on Drawings.
 - b. Furnish minimum loop size of 3 FT-6 IN (offset and width) for domestic water and 7 FT-0 IN (offset and width) for heating water.
 - c. For only offset, install 7 FT-0 IN for domestic hot water and 10 FT-0 IN for heating water.
- O. Flexible Couplings
1. Provide restrained flexible couplings to facilitate removal of equipment and piping after completion of the work.
 2. Additional couplings may be required to facilitate installation.
- P. Equipment Pipe Connections
1. Exercise care in bolting flanged joints so that there is no restraint on the opposite end of pipe or fitting which would prevent uniform gasket pressure at connection or would cause unnecessary stresses to be transmitted to equipment flanges.
 2. Where push-on joints are used in conjunction with flanged joints, final positioning of push-on joints shall not be made until flange joints have been tightened without strain.
 3. Tighten flange bolts at uniform rate which will result in uniform gasket compression over entire area of joint. Torque in accordance with manufacturer's recommendations.
 4. Support and match flange faces to uniform contact over their entire face area prior to installation of any bolt between the piping flange and equipment connecting flange.
 5. Permit piping connecting to equipment to freely move in directions parallel to longitudinal centerline while bolts in connection flange are tightened.
 6. Align, level, and wedge equipment into place during fitting and alignment of connecting piping.
 7. Grout equipment into place prior to final bolting of piping but not before initial fitting and alignment.
 8. To provide maximum flexibility and ease of alignment, assemble connecting piping with gaskets in place and minimum of 4 bolts per joint installed and tightened. Test alignment by loosening flange bolts to see if there is any change in relationship of piping flange with equipment connecting flange. Realign as necessary, provide flange bolts and make equipment connection.
 9. Make piping connections to equipment, including but not limited to, installation of brass and fittings, strainers, pressure reducing valves, flow control valves and relief valves provided with or as integral part of equipment.

10. For each potable or service water supply piping connection to equipment, provide union and gate or angle valve. Provide wheel handle stop valve at each laboratory sink water supply. Minimum size to be 1/2 IN.
 11. Provide "P" trap for each waste piping connection to equipment if waste is connected directly to building sewer system. Size trap as required by Plumbing Code.
 12. Stub piping for equipment, sinks, lavatories, supply and drain fittings, key stops, "P" traps, miscellaneous traps and miscellaneous brass through wall or floor and cap and protect until time of final installation.
- Q. Provide insulating components where dissimilar metals are joined together.
- R. Assure gauge tapping position is clear of equipment functions and movements, and location is protected from maintenance and operation of equipment. Assure gauge is readable from an accessible standing position.
- S. Provide control valves, piping system specialties and appurtenances as specified in other sections which are required for a complete system.

3.05 CONNECTIONS WITH EXISTING PIPING

- A. Where connection between new work and existing work is made, use suitable and proper fittings to suit conditions encountered.
- B. Perform connections with existing piping at time and under conditions which will least interfere with service to those affected by such operation.
- C. Undertake connections in fashion which will disturb existing system as little as possible.
- D. Utilize suitable equipment and facilities to dewater, drain, and dispose of liquid removed without damage to adjacent property.
- E. Where connections to existing systems necessitate employment of past installation methods not currently part of trade practice, utilize necessary special piping components.
- F. Where connection involves potable water systems, provide disinfection methods as prescribed in these specifications.

3.06 WELDING

- A. Have each welding operator affix an assigned symbol to all his welds. Mark each longitudinal joint at the extent of each operator's welding. Mark each circumferential joint, nozzle, or other weld in places 180 degrees apart.
- B. Use only certified welders meeting procedures and performance outlined in Section 9 of the ASME or other codes and requirements per local building and utility requirements.

- C. Welding for all process piping shall conform with ANSI B31.3. and AWWA Standards. Welding of utility piping 125 PSI and less shall be welded per ANSI B31.9. Utility piping above 125 PSI shall conform to ANSI B31.1.
- D. Provide caps, tees, elbows, reducers, etc. manufactured for welded applications.
- E. Weld-o-lets may be used for 5 IN and larger pipe provided all slag is removed from inside the pipe.
- F. Weld-in nozzles may be used for branch connections to mains.
- G. Use all long radius welding elbows for expansion loops and bends.
- H. Use long radius reducing weld-in elbows, 90-degree bends and size changes where required.

3.07 FIELD QUALITY CONTROL

- A. General
 - 1. Utilize pressures, media and pressure test durations as specified on Piping Schedules.
 - 2. Isolate equipment which may be damaged by the specified pressure test conditions.
 - 3. Perform pressure test using calibrated pressure gauges and calibrated volumetric measuring equipment to determine leakage rates. Select each gauge so that the specified test pressure falls within the upper half of the gauge's range. Notify Engineer 24 hours prior to each test.
 - 4. Completely assemble and test new piping systems prior to connection to existing pipe systems.
 - 5. Acknowledge satisfactory performance of tests and inspections in writing to Engineer prior to final acceptance.
 - 6. Provide all necessary equipment and perform all work required in connection with the tests and inspections.
 - 7. Bear the cost of all testing and inspecting, locating and remedying of leaks and any necessary retesting and re-examination.
- B. Testing methods and criteria
 - 1. Liquid systems
 - a. Ductile iron pipe systems: Test ductile iron pipe in accordance with the latest version of AWWA C600. However, this project requires zero allowable leakage over a two-hour test period. Test at pressures listed on the Drawings.
- C. Dielectric Testing Methods and Criteria
 - 1. Provide electrical check between metallic non-ferrous pipe or appurtenances and ferrous elements of construction to assure discontinuity has been maintained.
 - 2. Wherever electrical contact is demonstrated by such test, locate the point or points of continuity and correct the condition.

3. Check the integrity of each cadwelding connection using a light hammer blow at a 45-degree angle.

3.08 CLEANING, FLUSHING, AND DISINFECTION

1. See Section 33 02 02 – Disinfection of Piping, Structure and Facilities.

3.09 PIPE TEST RESULT FORMS

- A. See attached forms immediately following this Section.

END OF SECTION

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**Hydrostatic Pipeline Leakage Test for DIP
(*Based on AWWA C600)**

Project Title: _____

Project Number: _____

Date of Test: _____

Pipeline Service _____

Pipeline Description: _____

Test Point: _____

Test Duration: _____ **hour(s)**

Test Pressure (P): _____ **psi**

Pipe Diameter (D): _____ **inches**

Pipe Length (S): _____ **feet**

***Allowable Leakage:** **Zero** _____ **gallons/hour**

Test Data

Time	Pressure (psi)	Meter Reading (gallons)	Water Added (gallons)	Comments

Actual Loss: _____ **gallons/hour or** _____ **ounces/hour**

Test Status: **Passed** **Fail**

**Was this Test in accordance with AWWA C600 testing procedures,
except with zero allowable leakage over a two-hour test period?** **Yes** **No**

**We hereby certify that the testing completed on the above referenced pipeline(s) is in
accordance with the requirements of the Rules and Regulations.**

Test Performed By: _____

(Company)

Witnessed By: _____

(Company)

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SECTION 33 02 02

DISINFECTION OF PIPING, STRUCTURES AND FACILITIES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Disinfection of facilities, including process piping, water storage structures and other facilities.

1.02 RELATED SECTION

- A. Section 01 11 00 – Summary of Work
- B. Section 01 72 00 – Startup, Demonstration and Instruction of Facilities
- C. Section 33 02 01 – Pipe and Pipe Fittings – General Statement
- D. Section 33 03 02 – Ductile Iron Pipe
- E. Section 33 90 02 – Valves and Operators
- F. Section 43 41 12 – Glass Lined Bolted Steel Tank

1.03 REFERENCES

- A. American Water Works Association (AWWA)
 - 1. AWWA C651 – Disinfecting Water Mains
 - 2. AWWA C652 – Disinfection of Water Storage Facilities

PART 2 – PRODUCTS

2.01 DISINFECTION MATERIALS

- A. Use only potable water for disinfection activities.
- B. Chlorine residual test kit.
 - 1. Products as manufactured by Hach Chemical or equal.

PART 3 – EXECUTION

3.01 PROCEDURES

- A. Coordinate disinfection with performance testing, pressure/leak testing, equipment demonstration, and plant start-up procedures as described in sections 01 72 00, 33 02 01, and 43 41 12.
- B. Thoroughly clean piping and structures prior to disinfection, as described in individual sections.
- C. Discharge all chlorinated water to the sanitary sewer system. Coordinate all discharges with Owner prior to discharge. Do not discharge chlorinated water into storm drain systems, watercourses or surface waters.

3.02 CLEANING, DISINFECTION, AND TESTING OF EQUIPMENT AND CEMETERY TANK

- A. Cleaning
 - 1. Remove all scaffolding, planks, tools, rags and any other materials not part of the structural or operating facilities of the tank.
 - 2. Sweep and remove dirt, sediment, paint flakes and any other foreign materials remaining in the tank.
 - 3. Following sweeping, perform high-pressure jet wash of tank walls and floor. All accumulated materials shall be discharged, vacuumed and otherwise removed from the tank.
 - 4. Any chemicals used as part of the cleaning process shall not contain hazardous substances or deleterious compounds that would cause a violation of water quality health-effects standards if subsequently introduced into the water supply during disinfection and filling operations.
- B. Disinfection and Testing
 - 1. Disinfect the tank prior to startup according to AWWA C652 – Disinfection of Water Storage Facilities. Disinfection shall not take place until tank sealant has fully cured.
 - 2. Perform bacteriological sampling and testing in accordance with AWWA C652-02: Disinfection of Water Storage Facilities, Section 5.1.
 - 3. See manufacturer's requirements. The more stringent is required.
- C. Acceptable forms of chlorine for disinfection shall be:
 - 1. Liquid chlorine as specified in AWWA C652
 - 2. Sodium hypochlorite as specified in AWWA C652

- D. Acceptable methods of chlorination shall be:
1. Chlorination Method 1 as outlined in AWWA C652
 2. Chlorination Method 2 as outlined in AWWA C652
 3. Chlorination Method 3 as outlined in AWWA C652

3.03 CLEANING, FLUSHING AND DISINFECTION OF PIPELINES

- A. Cleaning
1. Clean interior of piping systems thoroughly before installing.
 2. Maintain pipe in clean condition during installation.
 3. Before jointing piping, thoroughly clean and wipe joint contact surfaces and then properly dress and make joint.
 4. Immediately prior to pressure testing, clean and remove grease, metal cuttings, dirt, or other foreign materials which may have entered the system.
 5. At completion of work and prior to final acceptance, thoroughly clean work installed under these specifications. Clean equipment, fixtures, pipe, valves, and fittings of grease, metal cuttings, and sludge which may have accumulated by operation of system, from testing, or from other causes. Repair any stoppage or discoloration or other damage to parts of building, its finish, or furnishings, due to failure to properly clean piping system, without cost to Owner.
- B. Disinfection
1. Disinfect designated process piping in accordance with AWWA C651-05: Disinfecting Water Mains, Section 4.4.3 Continuous Feed Method.
 2. Use only sodium hypochlorite for disinfection as specified in Section 2.01 of this Specification.
 3. Following disinfection, perform final flushing of piping in accordance with AWWA C651-05: Disinfecting Water Mains, Section 4.5.
 - a. Heavily chlorinated water should not remain in prolonged contact with pipe.
 4. Perform bacteriological sampling and testing in accordance with AWWA C651-05: Disinfecting Water Mains, Section 5.1.
 5. Clean and disinfect the following piping:
 - a. Water (W), including both underground and exposed piping.
- C. Flushing Piping Systems
1. After favorable performance of pressure test and prior to final acceptance, thoroughly flush entire potable water piping system any appurtenant devices and perform disinfection as prescribed.
 2. Perform work, including preventative measures during construction, in full compliance to provide flushing velocity of not less than 2.5 FT per second.
 3. As allowed by local authority, drain flushing water to sanitary sewer. Do not drain flushing water to receiving stream.
 4. Contractor to provide proposed method for flushing, de-chlorination, and disposal.

END OF SECTION

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SECTION 33 03 02

DUCTILE IRON PIPE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. All ductile iron piping, fittings, and appurtenances.

1.02 RELATED SECTIONS

- A. Section 33 02 01 Pipe and Pipe Fittings: General Statement
- B. Section 33 02 02 Pipe Support Systems

1.03 REFERENCES

- A. American National Standards Institute (ANSI)
 - 1. B1.1 – Unified Inch Screw Threads
 - 2. B16.1 – Cast Iron Pipe Flanges and Flanged Fittings. Class 25, 125, 250 and 800.
- B. American Society for Testing and Materials (ASTM)
 - 1. A183 – Standard Specification for Carbon Steel Track Bolts and Nuts
 - 2. A194 – Standard Specifications for Carbon and Alloy Steel Nuts and Bolts for High Pressure, Temperature Service
 - 3. A307 – Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
 - 4. A325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105ksi Minimum Tensile Strength
 - 5. A436 – Standard Specification for Austenitic Gray Iron Castings
 - 6. A536 – Standard Specification for Ductile Iron Castings.
 - 7. A563 – Standard Specification for Carbon and Alloy Steel Nuts
 - 8. A746 – Standard Specification for Ductile Iron Gravity Sewer Pipe
- C. American Water Works Association (AWWA)
 - 1. C105 – Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids
 - 2. C110 – Ductile -Iron and Gray Iron Fittings, 3 IN through 48 IN for Water and Other Liquids
 - 3. C111 – Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
 - 4. C115 – Flanged Ductile Iron Pipe with Threaded Flanges
 - 5. C150 – Thickness Design of Ductile Iron Pipe
 - 6. C151 – Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids
 - 7. C153 – Ductile Iron Compact Fittings, 3 IN through 24 IN and 54 IN through 64 IN for Water Service

8. C203 – Coal Tar Protective Coatings and Linings for Steel Water Pipelines
9. C606 – Grooved and Shouldered Joints

1.04 SUBMITTALS

- A. Certifications and Testing consistent with Section 01 45 00 Quality Control and including:
 1. See Section 33 02 01 Pipe and Pipe Fittings: General Statement.
- B. Shop Drawings consistent with Section 01 33 00 Submittals and including:
 1. See Section 33 02 01 Pipe and Pipe Fittings: General Statement.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Ductile Iron Pipe
 1. ASTM A746
 2. AWWA C115
 3. AWWA C150
 4. AWWA C151
- B. Joints and Gaskets
 1. Flanged: AWWA C115, faced and drilled per ANSI B16.1
 2. Grooved and Shouldered: AWWA C606, rigid type
 3. Mechanical and Push-On (Tyton Joint): AWWA C111
- C. Fittings
 1. AWWA C110 (Standard)
 2. AWWA C115 (Compact)
 3. Flanges drilled and faced per ANSI B16.1 for both 125 and 250 psi applications.
- D. Nuts and Bolts
 1. Buried Installation
 - a. Bolts: Type 316 Stainless Steel
 - b. Nuts: Type 316 Stainless Steel
 - c. Washers: Type 316 Stainless Steel
 - d. Provide two nuts for each bolt one-inch diameter and larger.
 2. Exposed Installation inside all structures
 - a. Type 316 Stainless Steel
- E. Encasement: V-Bio® Enhanced Polyethylene Encasement
 1. Provide on all pipe and fittings.
 2. Install in accordance with manufacturer's instructions
- F. Linings: Cement Mortar Lining (CML)

- G. Coatings
 - 1. Exposed Piping
 - a. Shop applied primer: See Section 09 00 00 Painting.
 - 2. Buried piping:
 - a. Provide Metallized Zinc Coating for all pipe and fittings.

2.02 MANUFACTURED UNITS

- A. Couplings
 - 1. Flanged adapters
 - a. Flanged Adapters: Products as manufactured by Rockwell Style 913, Dresser Style 128 or equal.
 - b. Restrained Flanged Adapters: Products as manufactured by EBAA Iron Inc. Megaflange series 2100 or equal.
 - c. Supply flanges meeting standards of adjoining flanges.
 - d. Rate entire assembly for the same test pressure of the connecting pipes.
 - 2. Mechanical (compression sleeve) coupling
 - a. Products as manufactured by Rockwell Style 431, Dresser Style 38, or equal.
 - b. Unit consisting of steel sleeve, follower rings, and ASTM A307 nuts and bolts.
 - c. Provide steel tie bolt assembly with each unit consisting of minimum four bolts equally spaced around the pipe and extending from-cast steel lugs welded on the pipe to lugs welded on the coupling middle ring.
 - d. Entire assembly to be rated for test pressure specified on piping schedule for each respective application.
 - e. Provide field coating for buried couplings per AWWA C203.
 - 3. Mechanical (Arched Band Split Sleeve) coupling
 - a. Unit consisting of one piece ASTM A36 carbon steel or Type 304L or 316L ASTM A240 stainless steel housing, gasket assembly, bolts and nuts, and end rings as required for pipe restraint.
 - b. Closure plates and sealing pads for installation and leak-proof seal.
 - c. O-ring gasket consisting of EPDM, Buna-N, silicone, or isoprene as required for intended service.
 - d. Couplings shall allow for angular deflection, expansion and vibration when required.
 - e. If a restrained joint is required it shall be accomplished with restraining rings welded to the exterior of the pipe and a restraining type coupling.
 - f. Provide field coating for buried couplings per AWWA C203 or C210.
 - g. Products as manufactured by Victaulic/Depend-O-Lok ExE, FxE, FxF (AWWA M11 harnessing), or approved equal.
 - 4. Mechanical Joint and push-on joint restraint Systems
 - a. See Drawings for thrust restraint detail and additional requirements.
 - b. In addition to concrete thrust restraints shown on the Drawings, provide restrained Joint Gaskets or Megalugs on all push-on joints of all pipe segments, at all fittings, and on all pipe segments.

- c. Provide units that incorporate the design of the follower gland and include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases.
- d. Glands manufactured of ductile iron conforming to ASTM A536.
- e. Ductile iron restraining devices with minimum hardness of 370 BHNe. Gland dimensions compatible with standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53.
- f. Use twist off nuts to insure proper actuating of the restraining devices.
- g. Working pressure of at least 250 psi with minimum safety factor of 2:1.
- 5. Flexible expansion couplings
 - a. Products as manufactured by EBAA Iron Sales, Inc., Flex-Tend, or equal.
 - b. Provide double ball joints, double sleeves, mechanical joint by mechanical joint, flexible expansion couplings.
 - c. Provide couplings fabricated from ductile iron conforming to material properties of AWWA C153/A21.53 and has been pressure tested to its own restraint to a minimum of 350 psi.
 - d. Provide couplings with minimum 15 degree deflection and 4 IN minimum expansion.

2.03 FABRICATION

- A. Furnish and install without outside coatings of bituminous material any exposed pipe scheduled to be painted.
- B. Furnish cast parts with lacquer finish compatible with finish coat.

2.04 SOURCE QUALITY CONTROL

- A. Factory Test
 - 1. Subject pipe to hydrostatic test of not less than 500 PSI with the pipe under the full test pressure for at least 10 seconds.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Prior to installation, inspect and verify condition of piping and appurtenances. Installation constitutes installer's acceptance of product condition for satisfactory installation.

3.02 PREPARATION

- A. Correct defects or conditions which may interfere with or prevent a satisfactory installation.
- B. Assure ends of pipe to be fitted with flanges have all protrusions ground flush.

- C. Assure ends of pipe to be fitted with grooved joint couplings are clean and free from indentations, projections, and roll marks in the area from pipe end to groove for proper gasket sealing.

3.03 ERECTION/INSTALLATION/APPLICATION

A. Joints

- 1. Exposed Piping
 - a. Flanged joints
- 2. Buried Piping
 - a. Push-on and mechanical

B. Joining Method -Flanged Joints

- 1. Provide in accordance with AWWA C115.
- 2. Extend pipe completely through screwed-on flanged and machine flange face and pipe in single operation.
- 3. Make flange faces flat and perpendicular to pipe centerline.
- 4. When bolting flange joints, exercise extreme care to ensure that there is no restraint on opposite end of pipe or fitting which would prevent uniform gasket compression or would cause unnecessary stress, bending or torsional strains to be applied to cast flanges or flanged fittings.
- 5. Allow one flange free movement in any direction while bolts are being tightened.
- 6. Do not assemble adjoining flexible joints until flanged joints in piping system have been tightened.
- 7. Gradually tighten flange bolts uniformly to permit even gasket compression.

C. Joining Methods - Mechanical (Gland-Type) Joints

- 1. Provide in accordance with AWWA C111.
- 2. Gaskets: EPDM
- 3. Assemble mechanical joints carefully according to manufacturer's recommendations.
- 4. If effective sealing is not obtained, disassemble, thoroughly clean, and reassemble the joint.
- 5. Do not overstress bolts.
- 6. Where piping utilizes mechanical joints with tie rods, align joint holes to permit installation of harness bolts.

D. Joining Method –Push-On Joints

- 1. Provide in accordance with AWWA C111.
- 2. All joints shall be restrained joint (RJ) gaskets. Provide Barracuda® RJ, or equal.
- 3. Assemble push-on joints in accordance with manufacturer's directions.
- 4. Bevel and lubricate spigot end of pipe to facilitate assembly without damage to gasket. Use lubricant that is non-toxic, does not support the growth of bacteria, has no deteriorating effects on the gasket material, and imparts no taste or odor to water in pipe.
- 5. Assure the gasket groove is thoroughly clean.
- 6. For cold weather installation, warm gasket prior to placement in bell.

7. Taper of bevel shall be approximately 30 degrees with centerline of pipe and approximately 1/4 IN back.
- E. Mechanical (Arch Band Split Sleeve) Couplings
1. The contractor shall inspect each coupling to ensure that there are no damaged portions of the coupling. Particular attention should be paid to the sealing pad/sealing plate area.
 2. Before installation, each coupling shall be thoroughly cleaned of any foreign substance which may have collected thereon and shall be kept clean at all times thereafter.
 3. Wrenches used shall be of a size and type recommended by the manufacturer. Bolts and studs shall be tightened so as to secure a uniform gasket compression between the coupling and the body of the pipe with all bolts or studs tightened approximately the same amount. Final tightening shall be done by hand (no air impact wrench) and is complete when the coupling is in uniform contact around the circumference of the pipe.
- F. Flange Adapters 12 IN and less
1. Locate and drill holes for anchor studs after pipe is in place and bolted tight.
 2. Drill holes not more than 1/8 IN larger than diameter of stud projection.
- G. Cutting
1. Do not damage interior lining material during cutting.
 2. Use abrasive wheel-cutters or saws.
 3. Make square cuts.
 4. Bevel and free cut ends of sharp edges after cutting.
- H. Support exposed pipe in accordance with Sections 33 02 01 Pipe and Pipe Fittings: General Statement.
- I. Install buried piping in accordance with Section 33 02 01 Pipe and Pipe Fittings: General Statement.
- J. In addition to mechanical restraints on all mechanical and push on joints, provide thrust restraints on all fittings as shown on the Drawings.

3.04 FIELD QUALITY CONTROL

- A. Test piping systems in accordance with Section 33 02 01 Pipe and Pipe Fittings: General Statement.

3.05 CLEANING, DISINFECTING, AND FLUSHING

- A. Clean in accordance with Section 33 02 02 Disinfection of Piping, Structures, and Facilities

END OF SECTION

SECTION 33 04 01

OPENINGS AND PENETRATIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Openings and penetrations in construction.

1.02 REFERENCES

- A. American Concrete Institute (ACI)
 - 1. 318 – Building Code Requirements for Reinforced Concrete.
- B. American Welding Society (AWS)
 - 1. D1.1 – Structural Welding Code.
- C. National Fire Protection Association (NFPA)
 - 1. 90A – Standard for Installation of Air Conditioning and Ventilating Systems.
- D. National Electrical Code (NEC)
- E. Uniform Building Code (UBC)

1.03 SUBMITTALS

- A. Shop Drawings consistent with Section 01 33 00 Submittals and including:
 - 1. Product technical data.
 - 2. For each structure provide dimensioned plan view drawings containing the following information.
 - a. Vertical and horizontal location of all required openings and penetrations
 - b. Size
 - c. Type
- B. Certifications and Testing consistent with Section 01 45 00 Quality Control and including:
 - 1. Certification that precast manufacturer has been furnished complete information concerning location and placement of opening and penetrations impacting precast products.

PART 2 - PRODUCTS

2.01 MANUFACTURED UNITS

- A. Annular Wall Seal
 - 1. Provide modular, mechanical type rubber links shaped to fill the area between pipe and wall opening.

2. For Standard Service applications (140 to 250°F), the seal shall be black EPDM per ASTM D2000.
 3. For High Temperature service applications (up to 400°F), the seal shall be gray silicone per ASTM D2000.
 4. Acceptable Manufacturers
 - a. Standard Service: Link Seal Model S-316 or approved equal.
 - b. High Temperature Service: Link Seal Model T or approved equal.
- B. Wall Sleeve
1. Sleeves through wall to allow pipe penetrations shall be constructed of Schedule 40 Galvanized Steel.
- C. Flexible Pipe to Manhole Connector (Pipe Boot)
1. Pipe Boot shall be, Kor-N-Seal as manufactured by NPC Inc., or approved equal.
 2. Internal expander assembly and external pipe clamp shall be Type 316 SS.
- D. Manhole Adapter Gaskets
1. PVC connections to manholes shall be sealed using a ribbed elastomeric gasket.
 2. Acceptable Manufacturers
 - a. Romac Industries Style LCT
 - b. Hamilton-Kent

PART 3 - EXECUTION

3.01 ERECTION/INSTALLATION/APPLICATION

- A. When mechanical work cannot be installed as structure is being erected, provide and arrange for building-in of boxes, sleeves, insets, fixtures or devices necessary to permit installation later. Lay out chases, holes or other openings which must be provided in masonry, concrete or other work.
- B. Where pipes or ducts pass through floors in locations where floors can be washed or wetted, set sleeves with top 4 IN above finish floors. For all other applications, set sleeves with ends flush with finished surfaces.
- C. For insulated piping or ducts, size sleeves large enough to accommodate full thickness of insulation, except for four (4) hour rated walls.
- D. Set sleeves or framed openings in advance in order to avoid conflict with other trades.
- E. Hot dip galvanize all steel sleeves installed.
- F. Openings and Penetrations Through Concrete
1. Perform pipe embedment work in accordance with ACI 318, Chapter 6.
 2. Comply with following for cast-in-place concrete construction unless otherwise specifically approved
 - a. Do not cut into nor core drill any beams, joists or columns.

- b. Do not install sleeves in beams, joists, or columns.
 - c. Do not install recesses in beams, joists, columns or slabs.
 - d. Utilize one of the following installation methods.
 - 1) Core drill with non-impact type equipment (preferred).
 - 2) Mark opening and drill small 3/4 IN or/less holes through structure following opening outline.
 - 3) Sawcut opening outline on both surfaces then knock out within sawcuts using impact type equipment using extreme caution not to chip or spall face of surface to remain intact.
 - e. When any opening larger than 10 IN must be made in a completed structure, secure approval from Owner before starting work.
3. Comply with following for precast-prestressed concrete construction unless otherwise specifically approved by Owner.
- a. Do not cut openings or core drill vertically or horizontally through stems of members.
 - b. Do not locate or install sleeves or recess sleeves vertically or horizontally through or in stems of members.
 - c. Openings and sleeves to be cast into flanges of units.
 - d. Openings larger than 6 IN in diameter or 6 IN maximum dimension shall be cast in units at time of manufacture. Openings smaller than 6 IN in diameter or 6 IN maximum dimensions may be cast in flanges of units at time of manufacture or may be field cut.
- A. Perform electrical penetrations in accordance with NEC, Article 501 and UBC.

END OF SECTION

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SECTION 33 90 02

VALVES AND OPERATORS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. All valving, operators, and valving appurtenances

1.02 RELATED SECTIONS

- A. Section 33 02 01 - Pipe and Pipe Fittings: General Statement

1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. National Sanitation Foundation (NSF) and American National Standards Institute (ANSI):
 - a. B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
 - b. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - c. NSF/ANSI-372, Drinking Water System Components – Lead Content
 - 2. American Society of Sanitary Engineers (ASSE): 1011, Performance Requirements for Hose Connections Vacuum Breakers.
 - 3. American Society for Testing and Materials (ASTM):
 - a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - b. A276, Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
 - c. A351, Standard Specification for Castings, Austenitic, Austenitic-Ferric (Duplex), for Pressure-Containing Parts.
 - d. A536, Standard Specification for Ductile Iron Castings.
 - e. B61, Standard Specification for Steam or Valve Bronze Castings.
 - f. B62, Standard Specification for Composition Bronze or Ounce Metal Castings.
 - g. B98, Standard Specification for Copper-Silicon Alloy Rod, Bar, and Shapes.
 - h. B127, Standard Specification for Nickel-Copper Alloy (UNS N04400) Plate, Sheet, and Strip.
 - i. B139, Standard Specification for Phosphor Bronze Rod, Bar, and Shapes.
 - j. B164, Standard Specification for Nickel-Copper Alloy Rod, Bar, and Wire.
 - k. B194, Standard Specification for Copper-Beryllium Alloy Plate, Sheet, Strip, and Rolled Bar.

- l. B584, Standard Specification for Copper Alloy Sand Castings for General Applications.
- m. D429, Test Methods for Rubber Property—Adhesion to Rigid Substrates.
- n. D1784, Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
- 4. American Water Works Association (AWWA):
 - a. C500, Gate Valves for Water and Sewerage Systems.
 - b. C504, Standard for Rubber-Seated Butterfly Valves.
 - c. C508, Standard for Swing-Check Valves for Waterworks Service, 2 in. Through 24 in. NPS.
 - d. C509, Resilient-Seated Gate Valves for Water and Sewerage Systems.
 - e. C540, Power-Actuating Devices for Valves and Sluice Gates.
 - f. C550, Protective Epoxy Interior Coatings for Valves and Hydrants.
 - g. C606, Grooved and Shouldered Joints.
 - h. C800, Underground Service Line Valves and Fittings.
- 5. Manufacturers Standardization Society (MSS):
 - a. MSS-SP-67, Butterfly Valves

1.04 SUBMITTALS

- A. Shop Drawings:
 - 1. Product data sheets for make and model.
 - 2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
 - 3. Power and control wiring diagrams, including terminals and numbers.
 - 4. Complete motor nameplate data.
 - 5. Open/close and throttle actuators sizing calculations.
- B. Quality Control Submittals:
 - 1. Certificate of Compliance for:
 - a. Butterfly valves; full compliance with AWWA C504.
 - 2. Tests and inspection data.
 - 3. Contractor shall determine the on-site inlet natural gas pressure to the specified gas regulating valves and submit the findings to the engineer.
 - 4. Manufacturer's Certificate of Proper Installation.
 - 5. Operation and maintenance manual.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Valve to include operator, actuator, handwheel, chain wheel, extension stem, floor stand, worm and gear operator, operating nut, chain, wrench, and accessories for a complete operation.
- B. Valve to be suitable for intended service. Renewable parts not to be of a lower quality than specified.

- C. Valve same size as adjoining pipe.
- D. Valve ends to suit adjacent piping.
- E. Size operator to operate valve for the full range of pressures and velocities.
- F. Valve to open by turning counterclockwise.
- G. Factory mount operator, actuator, and accessories.
- H. Valves on non-metallic piping systems shall be of non-metallic construction.

2.02 MATERIALS

- A. Brass and bronze valve components and accessories for potable and non-potable water that have surfaces in contact with water shall be lead free and meet current EPA standards.
- B. Approved alloys are of the following ASTM designations:
 - 1. B61, B62, B98 (Alloy UNS No. C65100, C65500, or C66100), B139 (Alloy UNS No. C51000), B584 (Alloy UNS No. C90300 or C94700), B164, B194, and B127.
 - 2. Stainless steel Alloy 18-8 may be substituted for bronze.

2.03 FACTORY FINISHING

- A. Epoxy Lining and Coating:
 - 1. In accordance with AWWA C550 and NSF 61 unless otherwise specified.
 - 2. Either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as “fusion” or “fusion bonded” epoxy.
 - 3. Minimum 7-mil dry film thickness except where limited by valve operating tolerances.
- B. Exposed Valves:
 - 1. In accordance with Section 09 99 00 - Painting.
 - 2. Safety isolation valves and lockout valves with handles, handwheels, or chain wheels “safety yellow.”

2.04 VALVES

- A. Gate Valves:
 - 1. Gate Valve 3 Inches and Smaller: All-bronze, screwed bonnet, single solid wedge gate, nonrising stem, rated 125-pound SWP, 200-pound WOG.
 - a. Manufacturers and Products:
 - 1) Stockham; B103, threaded end.
 - 2) Crane; 438, threaded end.

- 3) Stockham; B104, soldered end.
 - 4) Crane; 1324, soldered end.
 2. Resilient Seated Gate Valve 3-Inch to 12-Inch for Water Service:
 - a. Iron body, resilient seat, bronze mounted, mechanical joint ends, for buried service, flanged ends for exposed service, nonrising stem, equipped with O-ring stem seals, and shall close by turning clockwise, in accordance with AWWA C509, rated 200 psi cold water, full port, fusion epoxy-coated inside and outside.
 - b. Coating in accordance with AWWA C550 and NSF 61.
 - c. Manufacturers and products:
 - 1) Mueller
 - 2) Waterous
 - 3) AYK
- B. Butterfly Valves:
1. Buried Service
 - a. Butterfly valve specified shall meet or exceed the requirements of AWWA C504, Class 150B and be in compliance with the following requirements:
 - 1) Suitable for throttling operations and infrequent operation after periods of inactivity.
 - 2) Elastomer seats bonded or vulcanized to body shall have adhesive integrity of bond between seat and body assured by testing with minimum 75-pound pull in accordance with ASTM D429, Method B or The valve shall be capable of handling velocities of 30 feet per second without vulcanized seats.
 - 3) Bubble-tight with rated pressure applied from either side.
 - 4) No travel stops for the disc on interior of the body.
 - 5) Self-adjusting V-type or O-ring shaft seals.
 - 6) Isolate metal-to-metal thrust bearing surfaces from flowstream. Flanged end, short body type, including lug style body valves.
 2. Exposed Service
 - a. Flanged end, short body type, including lug style body valves.
 - b. Valve materials:
 - 1) Ductile Iron Pipe:
 - (a) Valve Body: Cast iron
 - (b) Disc: Nylon coated ductile iron
 - (c) Seals and Seat: EPDM
 - (d) Stem: 316 stainless steel
 - 2) PVC Pipe:
 - (a) Valve Body: PVC
 - (b) Disc: Polypropylene
 - (c) Seals and Seats: EPDM
 - (d) Shaft: Stainless steel
 - c. Pressure rated at 175 psi for 12 Inch and smaller.
 - d. Elastomer seat shall meet MSS-SP-67 requirements and be field replaceable.

- e. All connections to stainless steel piping shall be insulated. See Section 33 02 01.
 - f. Manufacturers and Products:
 - 1) Bray, Series 30/31 and 36
 - 2) Keystone
 - 3) Crane
- C. Check Valve:
 - 1. Swing Check Valve:
 - a. Manufacturers and Products:
 - 1) GA Industries, APCO, or others that meet these specifications.
 - b. Flanged end, cast iron body, bronze mounted swing type, solid bronze hinges, stainless steel hinge shaft, outside lever and spring.
 - c. Rated for 250 PSI working pressure.
- D. Air Release Valve:
 - 1. Suitable for water service, automatically exhaust small amounts of entrained air that accumulates in a system, in CLOSED position, seat against resilient seat to prevent water leakage.
 - 2. Rated 150 psi working pressure, cast iron, ductile iron, or semi-steel body, cover with stainless steel float and trim.
 - 3. Manufacturers and Products:
 - a. APCO Valve and Primer Corp.
 - b. Val-Matic Valve
- E. Combination Valve (Air/Vacuum): Water
 - 1. Suitable for water service, discharging large amounts of air while system is being filled, admitting large amount of air while system is being drained, and releasing accumulated air from the system while it is under pressure and operating.
 - 2. Rated 150 psi working pressure, cast iron, ductile iron, or semi-steel body, cover with stainless steel float and trim.
 - 3. Manufacturers and Products:
 - a. APCO Valve and Primer Corp.
 - b. Val-Matic Valve

2.05 OPERATORS

- A. Manual Operator:
 - 1. General:
 - a. Operator force not to exceed 40 pounds under any operating condition, including initial breakaway. Gear reduction operator when force exceeds 40 pounds.
 - b. Operator self-locking type or equipped with self-locking device.
 - c. Position indicator on quarter-turn valves.
 - d. Worm and gear operators one-piece design worm-gears of gear bronze material. Worm hardened alloy steel with thread ground and polished.

- Traveling nut type operators threader steel reach rods with internally threaded bronze or ductile iron nut.
- e. Galvanized and painted handwheels.
- f. Valve handles to take a padlock, and wheels a chain and padlock.
- 2. Handwheels
 - a. Provide handwheels for all valves not having chain or lever operators.
 - b. Assure direction of rotation to open each valve counter-clockwise.
 - c. Furnish valve body or operator with impression cast showing word "OPEN" and arrow indicating open direction.
- 3. Buried Operator:
 - a. Buried service operators on valves larger than 2-1/2 inches shall have a 2-inch AWWA operating nut. Buried operators on valves 2 inches and smaller shall have cross handle for operation by forked key. Enclose moving parts of valve and operator in housing to prevent contact with the soil.
 - b. Design buried service operators for quarter-turn valves to withstand 450 foot-pounds of input torque at the FULLY OPEN or FULLY CLOSED positions, grease packed and gasketed to withstand a submersion in water to 10 psi.
 - c. Buried valves shall have extension stems, bonnets, and valve boxes.

2.06 ACCESSORIES

- A. Valve Tags:
 - 1. Provide 1 ½-inch diameter heavy brass or stainless steel tags for all manual valves greater than 2-inch diameter.
 - 2. Tag numbers will be provided during construction.
- B. T-Handled Operating Wrench:
 - 1. Three galvanized operating wrenches, 4 feet long.
 - 2. Manufacturers and Products:
 - a. Mueller; No. A-24610.
 - b. Clow No.; F-2520.
 - 3. Three galvanized operating keys for cross handled valves.
- C. Extension Bonnet for Valve Operator: Complete with stem and accessories for valve and operator.
 - 1. Manufacturers and Products:
 - a. Pratt
 - b. Allis-Chalmers
- D. Floor Stand and Extension Stem:
 - 1. Nonrising, indicating type.
 - 2. Complete with stem, coupling, handwheel, stem guide brackets, and yoke attachment.
 - 3. Stem Guide: Space such that stem L/R ratio does not exceed 200.
 - 4. Anchor Bolts: Type 304 SST.

5. Manufacturers and Products:
 - a. Clow; Figure F-5515.
 - b. Mueller, Figure A-26426.
- E. Floor Box and Stem:
 1. Plain type, for support of nonrising type stem.
 2. Complete with stem, operating nut, and stem guide brackets.
 3. Stem Guide: Space such that stem L/R ratio does not exceed 200.
 4. Anchor Bolts: Type 304 SST.
 5. Manufacturers and Products:
 - a. Neenah Foundry; R 7506.
 - b. Clow; No. F5690.
- F. Concrete Valve Box: Designed for traffic loads, sliding type, with minimum of 8-inch ID shaft.
 1. Box: Concrete, minimum depth 12 inches, cast iron ring seat.
 2. Lid: Cast iron, minimum depth 3 inches, marked WATER.
 3. Extensions: Concrete.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Flange Ends:
 1. Flanged valve boltholes shall straddle vertical centerline of pipe.
 2. Clean flanged faces, insert gasket and bolts, and tighten nuts progressively and uniformly.
- B. Screwed Ends:
 1. Clean threads by wire brushing or swabbing.
 2. Apply joint compound.
- C. Valve Orientation:
 1. Install handwheel or lever above valve when valve is installed in horizontal runs, unless otherwise shown.
 2. Orient butterfly valve shaft so that unbalanced flows or eddies are equally divided to each half of the disc, i.e., shaft is in the plane of rotation of the eddy.
- D. Install a line size ball valve and union upstream of each solenoid valve, in-line flow switch, or other in-line electrical device, excluding magnetic flowmeters, for isolation during maintenance.
- E. Locate valve to provide accessibility for control and maintenance.
- F. Extension Stem for Operator: Where the depth of the valve is such that its centerline is more than 3 feet below grade, furnish an operating extension stem with 2-inch operating

nut to bring the operating nut to a point 6 inches below the surface of the ground and/or box cover.

- G. Floor Box and Stem: Steel extension stem length shall locate operating nut in floor box.

3.02 TESTS AND INSPECTION

- A. Valve may be either tested while testing pipelines, or as a separate step.
- B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.
- C. Inspect air and vacuum valves as pipe is being filled to verify venting and seating is fully functional.
- D. Count and record number of turns to open and close valve; account for any discrepancies with manufacturer's data.
- E. Set, verify, and record set pressures for all relief and regulating valves.
- F. Test hydrostatic relief valve seating and record leakage. Adjust and retest to maximum leakage of 0.1 gpm per foot of seat periphery.
- G. See Section 01 72 00 Startup, Demonstration, and Instruction of Systems.

END OF SECTION

SECTION 40 90 00

INSTRUMENTATION AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. This section covers the furnishing and installation of metering and control equipment which shall include the following principal items:
1. Metering and Control Systems. Principal components of the metering and control systems shall be as listed on the “Instrument List” at the end of this section and shall include the PLC system as is shown on the Drawings.
 2. Miscellaneous. One lot of test equipment, spare parts, and miscellaneous devices as set forth herein. Supplementing this section, the drawings indicate locations and arrangement of panels and instruments and provide functional diagrams and schematics regarding connection and interaction with other equipment.
- B. Related Sections
1. Section 01 60 00 – Materials and Equipment
 2. Section 26 00 00 – Electrical

1.02 REFERENCES

- A. Codes & Permits
1. All work and materials shall comply with the National Electrical Code, the National Electrical Safety Code, and applicable local regulations and ordinances. All panels shall be listed by Underwriters Laboratories or other testing organizations acceptable to the governing authority. The Contractor shall, at his own expense, arrange for and obtain all necessary permits, inspections, and approval by the proper authorities in local jurisdiction of such work.

1.03 SUBMITTALS

- A. Complete fabrication, assembly, and installation drawings: wiring and schematic diagrams: and details, specifications, and data covering the materials used and the parts, devices, and accessories forming a part of the equipment furnished shall be submitted in accordance with the submittals section. Submittal data shall be grouped and submitted in two separate stages. The submittal for each stage shall be substantially complete. Individual drawings and data sheets submitted at random intervals will not be accepted for review. Instrument tag numbers indicated on the contract drawings shall be referenced where applicable. Submittal data for multifunctional instruments shall include complete descriptions of the intended functions and configurations of the instruments.
1. First-stage Submittal. The first-stage submittal shall include the following items.
 - a. Product catalog cut sheets clearly marked to show the applicable model number, operational features, and intended service of the device.
 - b. A detailed list of any exceptions, functional differences, or discrepancies between the Supplier’s proposed system and the contract requirements.

- c. Complete panel fabrication drawings and details of panel wiring, piping, and painting. Panel and subpanel drawings shall include overall dimensions, metal thickness, door swing, mounting details, and front of panel arrangement to show general appearance, with spacing and mounting height of instruments and control devices.
 - d. System wiring and installation drawings for all interconnecting wiring between components of the systems furnished and for all interconnecting wiring between the related equipment and the equipment furnished under this section. Wiring diagrams shall show complete circuits and indicate all connections.
 - e. If panel terminal designations, interdevice connections, device features and options, or other features are modified as a result of the fabrication process or factory testing, revised drawings shall be resubmitted.
 - f. A total of seven (7) copies for the submittal shall be provided.
2. Second-stage Submittal. Complete system documentation, in the form of operation and maintenance manuals, shall be provided. Manuals shall include complete product instruction books for each item of equipment furnished.
- a. Where instruction booklets cover more than one specific model or range of instrument, product data sheets shall be included which indicate the instrument model number, calibrated range, and all other special features. A complete set of “as-built” wiring, fabrication, and interconnection drawings, calibration and startup sheets shall be included with the manuals.
 - b. A copy of all final O&M manuals shall be provided in PDF format on a USB Thumb drive. All AutoCAD drawings shall be provided in PDF and DWG formats.
 - c. A total of two (2) printed copies, and two (2) softcopies of final O&M manuals shall be provided.

1.04 QUALITY ASSURANCE

A. Supplier’s qualifications

- 1. The entire system shall be designed, coordinated, and supplied by a qualified system integrator (Integrator) who is regularly engaged in the business of designing and building instrument and control systems for water and wastewater projects. The Contractor’s intended Integrator shall meet the following qualifications.
 - a. The Integrator shall have and shall maintain a qualified technical staff and design office. The qualifications and experience of key project personnel shall be acceptable to the Engineer.
 - b. The Integrator shall have the physical plant and fabricating personnel to complete the work specified. The Integrator’s fabrication capabilities and arrangements shall be acceptable to the Engineer.
 - c. The Integrator shall employ competent service personnel to service the equipment furnished. The geographic location of service personnel for this project shall be acceptable to the Engineer.
 - d. The Integrator shall provide a “Statement of Qualifications” indicating that they have successfully provided similar work for at least 5 years.

B. Coordination.

- 1. Instrument and control systems shall be designed and coordinated for proper operation with related equipment and materials furnished by other suppliers under other sections

of these specifications. All instruments and control devices shall be applied in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the instrument or device manufactured and the manufacturer of related equipment.

2. Installation drawings shall be prepared for interconnecting wiring and piping between the related equipment and the equipment furnished under this section. All interconnecting wiring shall be appropriate for the service and shall result in a properly functioning system.
3. The Integrator shall provide coordination with other contractors and supervision of installation as required during construction.
4. Coordination shall be provided between the Integrator and the process system supplier.
5. Instrument and control systems shall be designed and coordinated for proper operation with other sections of these specifications. These shall include but not be limited to Materials and Equipment – Section 01 60 00, Electrical – Section 26 00 00, and Programmable Logic Controllers – Section 40 95 00.

1.05 WARRANTY

- A. All suppliers shall warrant their hardware for a period of one year from the date of system acceptance.

PART 2 PRODUCTS

1.01 GENERAL REQUIREMENTS

- A. All equipment furnished under this section shall be selected by the system supplier for its superior quality and intended performance. Unless indicated otherwise, all equipment and material shall be new, undamaged and meet the requirements of UL. Where UL requirements are not applicable, equipment and material shall be identified as such by the supplier and approved by the Engineer before purchase and installation. Equipment and materials used shall be subject to review and shall comply with the following requirements.
 1. Power and Instrument Signals. Unless specified otherwise, electrical power supply to the instrumentation equipment will be unregulated 120 VAC at the locations noted on the one-line and functional diagrams. All transmitted electronic analog instrument signals shall be 4-20 mA DC and shall be linear with the measured variable.
 2. Metering Accuracy. System metering accuracy, as compared to the actual process value, shall be determined from the value read at the principal readout device such as the recorder or totalizer. System requirements shall not preclude any requirements specified herein for individual devices.
 - a. For systems where the primary measuring device, transmitter, and receiver are furnished under this section, the accuracies shall be within the following limits:
 - i) Level: 1.0% of measured span.
 - ii) Flow Rate: magnetic or transit time ultrasonic metering: 0.5% of full scale between 1.0 and 100% of scale.
 3. Appurtenances. Signal converters, signal boosters, amplifiers, special power supplies, special cable, special grounding, and isolation requirements shall be furnished and installed as required for proper performance of the equipment.

4. Interchangeability and Appearance. Instruments used for the same types of functions and services shall be of the same brand and model line insofar as possible. Similar components of different instruments shall be from the same manufacturer to facilitate maintenance and stocking of repair parts. Whenever possible, identical units shall be furnished. Recorders, process indicators, control stations, and similar panel-mounted instruments shall be of the same style and shall be products of the same major instrument manufacturer.
5. Programming Devices. A programming or system configuring device shall be provided for systems that contain any equipment which required such a device for routine calibration, maintenance, and troubleshooting. The programming device shall be complete and in like-new condition and shall be turned over to the Owner at completion of the startup.
6. Device Tag Numbering System. All devices shall be provided with permanent identification tags. The tag numbers shall agree with the instrument device schedules and with the supplier's equipment drawings. All field-mounted transmitters and devices shall have stamped stainless steel identification tags. Panel, subpanels, and rack-mounted devices shall have laminated plastic identification tags securely fastened to the device. Hand lettered labels or tape labels will not be acceptable.
7. Special Tools and Accessories. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.
8. Provide sunshade for outdoor installations.
9. Provide stainless steel tags for each instrument.

1.02 PANEL FABRICATION

- A. General Fabrication Requirements. All panels furnished hereunder shall conform to the requirements of NEMA ICS-6-1988. The following paragraphs describe general fabrication requirements for the instrument panels, consoles, enclosures, and subpanels:
1. All completed panels shall be UL 508A or UL 698 listed (as appropriate).
 2. Wiring
 - a. All internal instrument and component device wiring shall be as normally furnished by the manufacturer. With the exception of electronic circuits, all interconnecting wiring and wiring to terminals for external connection shall be stranded tinned copper, insulated for not less than 600 volts, with a moisture-resistant and flame-retardant covering rated for not less than 90°C.
 - b. The power entrance to each panel shall be provided with a surge protection device. Surge protectors shall be nominal 120 VAC. Surge protectors shall be of a non-faulting and non-interrupting design, with a response time of not more than 5 nanoseconds. Surge protectors shall be Cutler Hammer AEGIS Powerline Filters, or equal.
 - c. Panels that are over 15 cubic feet in total volume shall have panel lighting above each door of the panel.
 - d. Power distribution wiring on the line side of the panel's protective devices shall be minimum 12 AWG. Secondary power distribution wiring shall be minimum 16 AWG. Wiring for control circuits shall be minimum 16 AWG. Electronic analog circuits shall be 18 AWG twisted and shielded pairs rated not less than 300 volts.

Analog circuits shall be separated from ac power circuits. Wiring for ac power distribution, dc power distribution, and control circuits shall have different colors and shall agree with the color coding legend on the system supplier's panel wiring diagrams.

- e. Terminal blocks for external connections shall be suitable for 12 AWG wire and shall be rated 30 amperes at not less than 300 volts. Terminal blocks shall be fabricated complete with a marking strip, covers, and pressure connectors. Terminals shall be labeled to agree with identification shown on the supplier's submittal circuits, plus one ground for each shielded cable. Not less than 8 inches of clearance shall be provided between the terminal strips and the base of vertical panels for conduit and wiring space. Not less than 20% spare terminals shall be provided. Each control loop or system shall be individually fused, and all fused or circuit breakers shall be clearly labeled and located for easy maintenance. Terminal block shall be Phoenix Contact UT 4-MTD series.
 - f. All wiring shall be grouped and firmly supported inside the panel. Wiring shall be routed in nonmetallic slotted wire duct or similar. Ducts shall be readily accessible within the panel with removable covers and shall have a space of at least 40% of the depth of the duct available for future use after installation is complete and all field wiring installed. Sufficient space shall be provided between cable groups or ducts and terminal blocks for easy installation or removal of cables. Wire duct shall be Thomas & Betts Ty Duct or approved equal.
 - g. Where signal or loop wiring must be routed to more than one panel or device, the required circuit routing shall be as indicated on the one-line diagrams.
 - h. All analog input signals coming from external from the building where the panel is located shall have surge protection.
 - i. The panel fabricator shall provide such additional circuits as may be indicated on the electrical schematic drawings.
 - j. All wires in the panel shall be identified at both ends of the wire. These labels shall agree with the labels shown on the wiring diagrams. The wire labels shall be of the heat-shrink tube type of wire marker as manufactured by Brady thermal labels.
 - k. All instruments that require 120vac power that have the signal from the instrument going to a panel, shall be provided 120vac from that panel. The 120vac circuit to these instruments shall be individually fused.
3. Uninterruptable Power Supply (UPS)
- a. Any panels that have PLCs or are shown to have a UPS on the drawings shall have a UPS
 - b. The PLC and all associated equipment shall be powered by a UPS.
 - c. The UPS shall be sized to provide power to all devices connected to it for a minimum of 30 minutes.
4. The UPS shall be wired so that in the event of the UPS failure, the PLC panel will be powered by utility power and an alarm will be generated.
5. Nameplates. Nameplates shall be provided on the face of the panel or on the individual device as required. Panel nameplates shall have approximate dimensions and legends, as indicated on the drawings, letters approximately 3/16 inch high extending through the black face into the white layer. Nameplates shall be secured firmly to the panel. Panel face nameplates do not replace the requirement for device identification tags as specified herein under the Device Tag Numbering System paragraph.

6. Painting. Interior and exterior surfaces of all panels shall be thoroughly cleaned and painted with rust-inhibitive primer. The panel interior shall be painted white with the manufacturer's standard coating. All pits and blemishes in the exterior surface shall be filled. Exterior surfaces shall be painted with one or more finish coats of the manufacturer's standard coating. Finish coats shall have a dry film thickness of at least 4 mils.
7. Factory test. Panels shall be factory tested electrically by the panel fabricator before shipment.

1.03 METERING & CONTROL SYSTEMS

- A. Principal components for the metering and control systems are indicated on the "Instrument List" at the end of this specification.

1.04 CONTROL COMPONENTS

A. Panel Front-Mounted Devices

1. SELECTOR SWITCHES. Selector switches shall be a minimum 30 mm, heavy-duty, oil-tight type with gloved-hand or wing lever operators. Position legends shall be engraved on the switch faceplate. Switches for electric circuits shall have silver butting or sliding contacts, rated 10 amperes continuous at 120 volts ac. Contact configuration shall be as indicated on the drawings or as required for the application. Switches used in electronic signal circuits shall have contacts suitable for that duty. Switches shall be Eaton "Series 10250T", Square D "Class 9001", or approved equal.
2. INDICATING LIGHTS. Indicating lights shall be a minimum 30 mm, heavy-duty, oil-tight type, Push-to-Test, which uses a low voltage lamp. A built-in transformer shall be used for AC service. Legends shall be engraved on the lens or on a legend faceplate. Lamps shall be easily replaceable from the front of the indicating light. Indicating lights shall be Eaton "Series 10250T", Square D "Class 9001", or approved equal.
3. PUSH BUTTONS. Push buttons shall be a minimum 30 mm, heavy-duty, oil-tight type. Legends shall be engraved on push button faceplate. Contacts shall be rated 10 amperes continuous at 120 VAC. Push buttons shall be Eaton "Series 10250T", Square D "Class 9001", or approved equal.
4. DIGITAL PANEL DISPLAYS. Digital panel displays shall be designed for semi-flush mounting in a panel. The display shall be a 3-1/2 digit LED or gas-discharged type, with digit height of not less than 0.5 inch. The display shall be easily read at a distance of 10 feet in varying control room lighting environments. Operating temperature range shall be 0 to 40°C. Accuracy shall be plus or minus 0.1%. The display shall be scaled in engineering units, with the units engraved on the display face or on the associated nameplate. The display shall have selectable decimal point and shall provide red indication. Digital displays shall be as manufactured by Red Lion "PAXP" series or Action Instruments.

B. Panel Interior-Mounted Devices

1. POWER SUPPLIES. Regulated DC power supplies for instrument loops shall be provided as needed. Power supplies shall be suitable for input voltage variation of plus or minus 10%. The DC power supplies shall be Idec "PS5R Slim line", or Phoenix Contact "UNO".

2. RELAYS. Relays indicated to be provided in panels, enclosures, or systems furnished under this section shall be of the plug-in socket base type with dustproof plastic enclosures unless noted otherwise. Relays shall be UL listed. Relays shall have a minimum rating of 10 amperes at 120 VAC. Time-delay relays shall have dials or switch settings engraved in seconds and shall have timing repeatability of $\pm 2.0\%$ of setting. Latching and special purpose relays shall be as required for the specific application. Relays shall have a light to indicate when coil is energized. Relays shall be Idec "RH or RTE Series" or approved equal.
3. ELECTRONIC SIGNAL BOOSTERS AND ISOLATORS. Electronic Signal Boosters and Isolators shall have all solid-state circuitry and complete electrical isolation between the power supply and the input and output signals. Accuracy shall be $\pm 0.15\%$ of span. Isolators shall be manufactured by Acromag, Moore, or Phoenix Contact.

1.05 INSTRUMENTATION

A. Flow Instrumentation

1. Magnetic Flow Meters

- a. The Magnetic Flow Meter shall be a completely obstruction less, in-line flow meter with no constrictions in the flow of fluid through the meter. The meter shall consist of a metallic tube with flanged ends and with grounding rings. Flange diameter and bolt drilling pattern shall comply with ANSI/ASME B16.5, Class 150 for 24" and smaller, and AWWA Class D for 28" and larger. Meters shall be suitable for the maximum range of working pressures of the adjacent piping. Electrode and liner materials shall be fully compatible with the process fluid and shall comply with the requirements specified in the instrument device schedules. Each meter shall be factory calibrated, and a copy of the calibration report shall be submitted as part of the operation and maintenance manual submittal.
- b. In vaults, wet wells and all other below grade locations the flow meter shall be IP68/NEMA 6P Protection.
- c. The meter shall be capable of standing empty for extended periods of time without damage to any components. The meter housing shall be of a splash-proof and drip-proof design.
- d. Power supply to the meter shall be 120 VAC, 60 Hz, single phase.
- e. Provide NSF61 Drinking Water approval for Water Applications.
- f. Meters shall be Rosemount Type 8750W or approved equal.

B. Pressure and Level Instrumentation

1. Gauge Pressure and Pressure Sensing Level Transmitters.

- a. Transmitters used to measure process pressure or inferred level from process pressure such as a bubbler system or other source, shall include diaphragm type piezo resistive pressure transducer and microprocessor-based electronics. Transmitters shall be 24VDC loop power. Transmitters shall have self-diagnostics and electronically adjustable span, zero, and damping.
- b. Transmitters shall be enclosed in a NEMA Type 4X housing and shall be suitable for operation at temperatures from 0 to 180°F. All transmitter parts shall be of a corrosion-resistant material.

- c. Vents shall be provided on the sides of the diaphragm housing body. Transmitter shall have over-range protection to 1.5 times the upper range limit.
 - d. Accuracy shall be plus or minus 0.5% of calibrated span, with repeatability of 0.1%.
 - e. Transmitter output shall be 4-20mA DC without the need for external load adjustments and shall have an elevated or suppressed zero as required by the application.
 - f. Display shall be integrally mounted 2-Line LCD display scaled with engineering units.
 - g. Each transmitter shall be provided with a process shutoff valve and a bracket for mounting as required.
OPTIONAL: Bluetooth Enabled
 - h. Transmitters shall be Endress+Hauser “Model PMP51” or, approved equal.
2. Radar Level Transmitters
- a. The transducer shall emit radar pulses via the transmitter, with a frequency range of 6.3 GHz to 26 GHz. The instrument measures the pulse travel time between transmitter, surface, and receiver to calculate the level. The antenna design shall be suitable for mounting in nozzle as indicated on drawings. The design shall be such that product condensation on the antenna shall not affect the performance. Able to ignore momentary level spikes or momentary loss of echo and indicate loss of echo condition. Must be able to measure up to 98FT. Shall operate in process temperatures -40 to 176°F. Wetted parts shall be chemically compatible with process. Must have microprocessor-based signal transmitter. Power supply will be 4-wire 24VDC. Output signal shall be 4-20mA. Transmitter shall have backlit LCD display which can be remotely mounted if necessary. Transmitter shall be housed in NEMA 4X enclosure.
 - b. Secure and encrypted Bluetooth wireless technology for commissioning, operation, and maintenance via iOS/Android app.
 - c. The Radar level transmitter shall be Endress+Hauser “Micropilot M FMR20”, or approved equal.
3. Conductance Relay Level Switch
- a. Each level switch shall consist of a single-pole, double-throw relay with contacts rated not less than 5 amperes ac at 120 VAC. The relay primary power shall be 120 VAC. The electrodes shall be flexible wire suspension type with shielded stainless steel electrode tips. The electrode holder shall be the manufacturer’s standard holder appropriate for the application.
 - b. Electrodes and conductance relay shall be as manufactured by Gems Sensors (Warrick Controls) or Ametek (BW Controls), or approved equal.

C. Miscellaneous Instrumentation

1. Limit Switch

- a. The limit switch shall be of the lever operated limit switch type and shall be enclosed in a NEMA 4 housing. The switch shall be furnished with one NO and one NC contacts and screw type wiring terminal. The switch shall be heavy duty, oil tight type. Limit switches shall be Square D model “9007C54B2” with adjustable type roller lever arm “9007HA1” or approved equal.

PART 3 EXECUTION

1.01 INSTALLATION REQUIREMENTS

A. General Requirements

1. The instrumentation equipment shall be installed by the Contractor or his subcontractors in accordance with the manufacturers' instructions. The services of the system Supplier's technical representative shall be provided as necessary to calibrate, test, and advise others of procedures for adjustment and operation.

B. Inspection.

1. Inspect materials and equipment for signs of damage, deterioration or other deleterious effects of storage, transportation, handling, or defects in manufacture or assembly.
 - a. Replace with identical new materials or equipment or repair to like new condition any materials or equipment showing such effects to the satisfaction of the Engineer and Owner.

C. Equipment Installation.

1. Handle, install, connect, clean, condition, align and adjust products and equipment in strict accordance with manufacturer's instructions and in conformity with specification requirements.
 - a. Maintain one complete set of manufacturer's installation instructions at the jobsite during installation and until installation is accepted by the Engineer and Owner.
 - b. Perform all work in accordance with manufacturer's instructions.
 - i) Do not omit any preparatory step or installation procedure unless specifically modified or exempted by contract documents.
 - ii) Should job conditions or specification requirements conflict with manufacturer's instructions, consult with Engineer prior to proceeding.
 - c. Field Wiring. Field wiring materials and installation shall conform to the requirements of the electrical section.
 - d. Field Piping. Field piping materials and installation shall conform to the requirements of the miscellaneous piping section.
 - e. Field-Mounted Instruments. Instruments shall be mounted so they may be easily read and serviced and all appurtenant devices are easily operated. Installation details for some instruments are indicated on the drawings. Unless otherwise indicated on the drawings, instruments which include local indicators shall be mounted approximately 5 feet above the floor and shall be oriented for ease of viewing. Transmitters shall be mounted on corrosion-resistant pipe supports suitable for floor, wall, or bracket mounting.

D. Field Calibration. A technical representative of the system supplier shall calibrate each instrument and shall provide a written calibration report for each instrument, indicating the results and final tuning adjustment settings. The adjustment of each calibrated instrument shall be sealed or marked, insofar as possible, to discourage tampering. Instruments shall be calibrated before checkout of the operation of the system.

E. Systems Check. A technical representative of the system supplier shall participate in the checkout of metering and control systems. If interrelated devices furnished by other suppliers, such as valve actuators, motor controls, chemical feeders, or primary measuring devices, do

not perform properly when placed in service, the technical representative shall use suitable test equipment to introduce simulated signals to verify or measure signals from such devices as required to locate the source of trouble or malfunction. A written report stating the results of such tests shall be furnished, if requested by the Engineer, to assign responsibility for corrective measures.

1. Installation Test Equipment. Unless specified otherwise, all test equipment for the calibration and checking of system components shall be provided by the Contractor for the duration of the testing work. Unless specified otherwise, test equipment will remain the property of the Contractor or the system Supplier.

F. Adjustment and Cleaning

1. Perform all required adjustments, tests, operational checks, cleaning and other start-up activities required.
2. Take precautions, as necessary, to properly protect all equipment from damage. Installed equipment to be protected from further construction operations.

1.02 CUSTOMER TRAINING

- A. The coordinating supplier shall provide a qualified representative at the job site to train the Owner's personnel in operating and maintenance of the equipment. The training session shall include a technical explanation of the equipment and an actual hands-on demonstration. The training session shall consist of one 4-hour session, and the schedule shall be arranged and coordinated with the Engineer.

1.03 INSTRUMENT LIST

Eagle – Cemetery Tank

Instrument List

Tag #	Description	Service	Scale	Notes / Provided by
LIT-1	Tank Level	Radar	4-20mA	40 90 00
ZS-1	Tank Hatch Intrusion	Warrick Relay		40 90 00
LSH-1	Tank Level Switch High	Weighted Float		40 90 00
FE/FIT-2	Vault Flow	Magnetic Flow Meter	4-20mA	40 90 00
LSH-2	Vault Water on Floor	Warrick Relay		40 90 00
PIT-2	Vault Discharge Pressure Transmitter	Pressure Transmitter	4-20mA	40 90 00

END OF SECTION

SECTION 40 95 00

PROGRAMMABLE LOGIC CONTROLLERS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the items listed below and all other components necessary for a complete system as noted herein and indicated on the drawings.
 - 1. Programmable Logic Controllers (PLCs)
 - 2. Communication equipment
 - 3. HMI software
 - 4. Programming
 - 5. Spare parts
- B. Related Sections
 - 1. Section 01 60 00 – Materials and Equipment
 - 2. Section 26 00 00 – Electrical
 - 3. Section 40 90 00 – Instrumentation & Controls
 - 4. I/O list

1.02 REFERENCES

- A. ISA 5.1 – Instrumentation Symbols and Identification
- B. NEMA ICS 1 – General Requirements for Industrial Control and Systems
- C. NEMA ICS 2 – Standards for Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated 600 Volts
- D. DEMA ICS 3 – Industrial Control and Systems: Factory Built Assemblies
- E. NEMA ICS 6 – Industrial Controls and Systems: Enclosures

1.03 DESIGN REQUIREMENTS

- A. Discrete input/output signals shall all be 24VDC
- B. Analog input/output signals shall all be 4-20mA
- C. Analog signal isolators shall be independently powered units capable of driving two 4-20mA signals
- D. All required buffers, isolators, signal converter, and amplifiers for coordination with other equipment furnished under other sections, and between items of equipment needed for a

complete system shall be furnished under this section of the specifications whether indicated on the Drawings or not or detailed in these specifications or not.

1.04 SYSTEM DESCRIPTION

- A. Equipment furnished and installed under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer, unless exceptions are noted by Engineer.

- 1. I/O List. An I/O list is attached at the end of this section.

1.05 SUBMITTALS

- A. Submittals shall be required as noted in Section 40 90 00.

1.06 QUALITY ASSURANCE

- A. Supplier's qualifications
 - 1. The entire system shall be designed, coordinated, and supplied by the system integrator supplier.
- B. Coordination
 - 1. The PLCs and PLC system shall be designed and coordinated for proper operation with related equipment and materials furnished by other suppliers under other sections of these specifications. All devices shall be applied in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the instrument or device manufacturer and the manufacturer of related equipment.
 - 2. Installation drawings shall be prepared for interconnecting wiring and piping between the related equipment and the equipment furnished under this section. All interconnecting wiring shall be appropriate for the service and shall result in a properly functioning system.
 - 3. The Contractor shall provide coordination with other contractors and supervision of installation as required during construction.

1.07 WARRANTY

- A. The Supplier shall warrant the hardware, software, and configuration related to the operational performance of the facility for a period of two years from the date of system acceptance. The Supplier shall provide a two-year software service agreement to include any and all minor and/or major releases and upgrades and shall correct any problems or "bugs" which prohibit the SCADA system from performing process operations in accordance with these specifications.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All equipment furnished under this section shall be selected by the system supplier for its superior quality and intended performance. Unless indicated otherwise, all equipment and material shall be new, undamaged and meet the requirements of UL. Where UL requirements are not applicable, equipment and material shall be identified as such by the supplier and approved by the Engineer before purchase and installation. Equipment and materials used shall be subject to review and shall comply with the following requirements.
1. Interchangeability. All PLC systems shall be products of the same manufacturer and of the same series or product line. Processors, local and remote input/output hardware, communications modules, and specialty modules shall be interchangeable among all I/O panels and systems.
 2. Installed I/O requirements. Each PLC shall have I/O modules installed to accommodate requirements shown on drawings and the I/O List at the end of this section and with a minimum of 20% spares installed.
 3. Acceptable Manufacturers.
 - a. PLC – Allen Bradley CompactLogix 5069 Series and no equal.
 4. Modules shall be added as needed to provide for all the I/O required on the project plus the spares.
 5. All analog signals shall be logged in the Historian Software

2.02 MATERIALS AND EQUIPMENT

- A. Programmable Logic Controller (PLC)
1. The additions to the PLC system shall include, but are not limited to, the following components:
 - a. Input/Output Modules
 - i) Digital Input Modules
 - a) Number of Inputs: 7
 - b) Voltage Category: 120VAC
 - c) Module shall be Allen Bradley 5069-IA16.
 - ii) Digital Output Modules
 - a) Number of Outputs: 1
 - b) Voltage Category: 120VAC
 - c) Module shall be Allen Bradley 5069-OA16.
 - iii) Analog Input Modules
 - a) Number of Inputs: 3
 - b) Signal Range: 4-20mA
 - c) Module shall be Allen Bradley 5069-IF8
 - iv) Analog Output Modules
 - a) Number of Inputs: 0
 - b) Signal Range: 4-20mA
 - c) Module shall be Allen Bradley 5069-OF8.

- b. PLC Processor
 - i) 5066-L320ER
 - ii) Processor requires independent 24VDC power supply.
- B. PLC Programming Software
 - 1. The PLC programming software shall be Allen Bradley RSLogix 500 no equal.
- C. Remote Access Equipment
 - 1. Radio, Radio Tower and connection are existing.
 - 2. Contractor to provide connection from PLC to radio.

PART 3 EXECUTION

3.01 INSTALLATION REQUIREMENTS

- A. General Requirements
 - 1. It shall be the Supplier's responsibility to ensure that the entire PLC system and HMI system is installed in a satisfactory condition per these specifications and the manufacturer's requirements.
- B. Inspection
 - 1. Inspect materials and equipment for signs of damage, deterioration or other deleterious effects of storage, transportation, handling, or defects in manufacture or assembly.
 - a. Replace with identical new materials or equipment or repair to like new condition any materials or equipment showing such effects to the satisfaction of the Engineer and Owner.
- C. Equipment Installation
 - 1. Handle, install, connect, clean, condition, align and adjust products and equipment in strict accordance with manufacturer's instructions and in conformity with specification requirements.
 - a. Maintain one complete set of manufacturer's installation instructions at the jobsite during installation and until installation is accepted by the Engineer and Owner.
 - b. Perform all work in accordance with manufacturer's instructions.
 - i) Do not omit any preparatory step or installation procedure unless specifically modified or exempted by contract documents.
 - ii) Should job conditions or specification requirements conflict with manufacturer's instructions, consult with Engineer prior to proceeding.
- D. Adjustment and Cleaning
 - 1. Perform all required adjustments, tests, operational checks, cleaning and other start-up activities required.
 - 2. Take precautions, as necessary, to properly protect all equipment from damage. Installed equipment to be protected from further construction operations.

E. PLC and HMI Programming.

1. The Contractor shall be responsible for all PLC and HMI programming.

3.02 CUSTOMER TRAINING

1. The system supplier shall provide a qualified representative at the job site to train the Owner's personnel in operating and maintenance of the equipment. The training sessions shall include a technical explanation of the equipment and an actual hands-on demonstration. The training session shall consist of two consecutive 4-hour working days, and the schedule shall be arranged and coordinated with the Engineer.

3.03 EAGLE – CEMETERY TANK – I/O LIST

(Only I/O points other than the packaged systems are shown here)

Tag #	Description	Address	DI	DO	AI	AO	Scale	Notes
LIT-1	Tank Level				1		4-20mA	
ZS-1	Tank Hatch Intrusion		1					
LSH-1	Tank Level Switch High		1					
FE/FIT-2	Vault Flow				1		4-20mA	
LSH-2	Vault Water on Floor Alarm		1					
PIT-2	Vault Discharge Pressure				1		4-20mA	
M-2	Mixer Running		1					Future
MA-2	Mixer Fault		1					Future
HS-2	Mixer In Auto		1					Future
HC-2	Mixer Start/Stop Command			1				Future
	Totals		7	1	3	0		

END OF SECTION

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SECTION 43 41 12

GLASS-FUSED-TO-STEEL LINED, BOLTED STEEL TANK

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Tank shall be a glass-fused-to-steel lined, bolted steel potable water storage tank, including foundation, tank structure, and tank appurtenances as shown on the contract drawings and described herein.
- B. All Permits has be the responsibility of the Contractor.

1.02 QUALIFICATIONS OF TANK SUPPLIER

- A. The Engineers selection of factory applied glass-fused-to-steel lined, bolted steel tank construction for this facility has been predicated upon specific criteria, construction methods, and an optimum lining for resistance to internal and external tank corrosion. Deviations from the specified design, construction, or lining details, will not be permitted.
- B. The Contractor shall provide a new tank structure as supplied from a manufacturer specializing in the design, fabrication and erection of factory applied glass-fused-to-steel lined, bolted steel tanks for potable water applications. The manufacturer shall employ a staff of full-time design engineers, own and operate its steel fabrication facilities and glass line the tank all at one plant location.
- C. The tank shall be manufactured by Permastore, Aquastore, or Owner-approved equal.
- D. The tank manufacturers glass lining product shall be independently audited on an annual basis to confirm compliance to ISO28765:2017; and must provide a Certificate of Conformity from an independent source.
- E. The Engineer reserves the right to evaluate all bids based on long term, 50-year minimum operations, linings, and maintenance costs. Values to be used in this evaluation will be at the discretion of the Engineer, as detailed in this specification and bid tabulation form. The Engineer will add such costs, dependent upon the type of tank offered, to the bidder's price to determine the effective low bid for purposed of making an award.

1.03 QUALIFICATIONS OF TANK CONSTRUCTOR

- A. The Tank Constructor shall be experienced in the construction of the specified potable water tank and shall be certified by the manufacturer as an authorized builder. The Tank Constructor shall have built at least five tanks of similar type that are equal or greater in size than the specified tank.

- B. Tank Erection crews shall comply with the tank manufacturers requirements for building practices and equipment used on the job. The crew personnel shall be authorized by the tank manufacturer as an approved tank installer.

1.04 SUBMITTAL DRAWINGS AND SPECIFICATIONS

- A. Construction shall be governed by the Engineers drawings and specifications showing general dimensions and construction details after written approval by the Engineer of detailed erection drawings prepared by the Tank Constructor. There shall be no deviation from the drawings and specifications, except upon written approval from the Engineer.
- B. The Tank Constructor is required to furnish, for the approval of the Engineer and at no added cost, electronic copies of structural calculations and plans for the tank structure and site-specific foundation. All such submissions shall be stamped by a Professional Engineer licensed in the state of Colorado.
- C. When approved, such prints and submittal information will be returned to the tank builder marked “APPROVED FOR CONSTRUCTION” and these drawings will then govern the work detailed thereon. The approval by the Engineer of the tank supplier’s drawings shall be an approval relating only to their general conformity with the bid drawings and specifications and shall not guarantee detail dimensions and quantities, which remains the contractor’s responsibility.
- D. The tank manufacturer’s warranty as required by Section 3.03 herein shall be included with submittal information.
- E. The Contractor shall provide a standard Operation and Maintenance Manual after receipt of approved drawings.

PART 2 – PRODUCT CRITERIA

2.01 TANK SIZE

- A. The factory lined, glass-fused-to-steel lined, bolted steel water storage tank shall have a nominal diameter of 64 feet, with a nominal side water height of 34 feet. ~~The tank exterior~~

The Tank exterior color shall be Tan Tank internal sheet color shall be as specified by the Manufacturer.
(Munsell 7.5YR 7/4).

2.02 TANK CAPACITY

- A. Tank capacity shall be a minimum of 800,000 usable U.S. gallons (12 inches freeboard).
- B. Finished floor elevation shall be set at the elevation shown on the plans.

C. Tank Design Standards

1. The materials, design, fabrication, and erection of the bolt together tank shall conform to the AWWA Standard for “Factory-Coated Bolted Steel Tanks for Water Storage” – ANSI/AWWA D103 latest edition.
2. The tank coating system shall conform solely to Section 12.4 of ANSI/AWWA D103 latest edition and Section 10 of ISO28765:2017; and must provide a Certificate of Conformity from an independent source.
3. All materials furnished by the tank manufacturer, which are in contact with the stored water shall be certified and listed by the National Sanitation Foundations (NSF) to meet NSF/ANSI Additives Standard 61.

D. Design Criteria

1. The tank shall be designed in accordance with AWWA D103 latest edition requirements and all other pertinent Local, State, and Federal standards. The tank manufacturer shall be responsible for all site-specific seismic criteria and design loads.

Design Loads:

Minimum Freeboard: 12 Inches

Specific Gravity of Tank Contents: 1.00

Wind Speed: 120 mph (AWWA D103 latest edition /ASCE 7-10)

Topographic Factor: 1.75

Allowable Soil Bearing Capacity: 3,000 psf

Ground Snow Load: 45 psf

Roof Live Load: 15 psf

Seismic Information:

S_{DS}: 0.234

S_{D1}: 0.088

Use Group III/Risk Category IV

Site Class: C

2. The vertical bolt seam on the tank shell shall utilize a straight seam joint, incorporating a four-corner mitered joint, designed for liquid storage. The joint design must meet or exceed the design requirements set out in this specification and conform to the relevant design standards.

2.03 MATERIALS SPECIFICATIONS

A. Plates and Sheets

1. Plates and sheets used in the construction of the tank shell, and tank roof (if required), shall comply with the minimum standards of AWWA D103, latest edition.
2. Design requirements for mild strength steel shall conform to ASTM A1011 SS Grade 33.

3. Design requirements for high strength steel shall conform to ASTM A1011 Grade 55 Class 1 or ASTM A1011 Grade 60 class 1.
 4. The annealing effect created from the glass lined firing process shall be considered in determining ultimate steel strength. In no event shall yield strength greater than 50,000 psi be utilized for calculations as detailed in AWWA D103 latest edition, Sections 5.4 and 5.5.
 5. The annealing effect created from the glass lining firing process shall be considered in determining steel ultimate and yield strengths.
- B. Rolled Structural Shapes
1. Material shall conform to the minimum requirements of ASTM A36.
- C. Horizontal Wind Stiffeners (If required for structural purposes)
1. Design requirements for intermediate horizontal wind stiffeners shall be of the “web truss” design with extended tail to create multiple layers of stiffener, permitting wind loads to distribute around the tank.
 2. Web truss stiffeners shall be of steel with hot dipped galvanized coating.
 3. Rolled steel angle stiffeners are not permitted for intermediate stiffeners.
- D. Anchors
1. Tank shall be Ground-Supported Flat-Bottom Tank; Mechanically Anchored as designed by tank manufacturer. Contractor to submit tank design including mechanical anchors calculations, details and layout for review by the Engineer.
- E. Bolt Fasteners
1. Bolts used in tank lap joints shall be 0.5 IN – 13 UNC-2A rolled thread, conforming to ASTM A325 and A490.
 2. ASTM A325 Compliant Bolts:
 - a. Minimum Tensile Strength – 120,000 psi
 - b. Minimum Proof Load – 85,000 psi
 - c. Minimum Allowable Shear Stress with threads excluded from the shear plane – 30,000 psi
 3. ASTM A490 Compliant Bolts:
 - a. Minimum Tensile Strength – 150,000 psi
 - b. Minimum Proof Load – 120,000 psi
 - c. Minimum Allowable Shear Stress with threads excluded from the shear plane – 37,500 psi
 4. Bolt Finish - Hot dipped galvanized per AWWA D103 latest edition, Sections 4.2, 12.3 and A4.2.
 5. Bolt Head Encapsulation shall consist of high impact polypropylene copolymer encapsulation of entire bolt head. Resin shall be stabilized with an ultraviolet light resistant material. The bolt head encapsulation shall be certified to meet the requirements of the Water Supply Regulation 2001 for the Storage of Water for Public Supply or NSF/ANSI 61 or BS 6920 for indirect additives.
 6. All bolts on the vertical tank wall shall be installed such that the head portion is located inside the tank, and the washer and nut are on the exterior.

7. All lap joint bolts shall be properly selected such that threaded portions will not be exposed to the "shear plane" between tank sheets.
8. Bolt lengths shall be sized as to achieve a neat and uniform appearance. Excessive threads extending beyond the nut after torquing will not be permitted. The bolt heads will be color coded to aid the correct bolt length identification during construction and minimize risk of utilizing the incorrect bolt length and not compromising the structural integrity of the build.
9. All lap joint bolts shall include a minimum of four (4) splines on the underside of the bolt head at the shank in order to resist rotation during torquing.

F. Sealants

1. The lap joint sealant shall be a one component, moisture cured, polyurethane compound (Sika TS Plus). The sealant shall be suitable for contact with potable water and shall be certified to meet the NSF/ANSI Standard 61 for indirect additives.
2. The sealant shall be used to seal lap joints, sheet edges and bolt connections for sheet notches and starter sheets. The sealant shall cure to a rubber-like consistency, have excellent adhesion to the glass lining, low shrinkage, and be suitable for interior and exterior use.
3. Sealant curing rate shall depend on temperature and humidity conditions in line with the manufacturer's guidelines. The sealant shall cure to a rubber like consistency and have excellent adhesion to the glass lining, have low shrinkage, and be suitable for interior and exterior use.
4. Neoprene gaskets and tape type sealer shall not be used.

2.04 GLASS LINING SPECIFICATION

A. Surface Preparation

1. Sheets shall be steel grit-blasted to a silver grey finish on both sides to remove mill scale and surface oxidation.
2. Grit blasting shall be performed to the equivalent of SSPC SP10/NACE No 2, as required by AWWA D103 latest edition.
3. The surface anchor pattern shall be in the range of 1.0 mil to 4.0 mils, with a target value of 2.4 mils.

B. Cleaning

1. After fabrication and prior to application of the lining system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
2. Inspection of the sheets shall be made for traces of foreign matter or rust, any such sheets shall be re-cleaned or grit-blasted to an acceptable level of quality.

C. Fabrication

1. The sheets shall be fabricated prior to lining, trimming to the proper length and width, and putting all bolt seam holes and manways in place.
2. The sheets shall be rolled to the finished tank diameter prior to coating. Field bending of the sheets to the tank diameter will not be permitted.

D. Lining

1. All sheets shall receive a pre-coat to both sides. The pre-coat application weight is controlled and measured and sheets that do not meet the required specification, in accordance with the Manufacturer's specified parameters, shall be rejected at this point.
2. All pre-lined sheets shall be heat dried to ensure that a moisture free surface has been achieved before the glass lining layer is applied.
3. A coat of tan rich glass slip shall be continuously applied to both sides of the sheet followed by heat drying.
4. The lined sheets shall be visually inspected and sheets with spray or glass defects shall be rejected at this point.
5. The thickness of the lining system shall be measured using an electronic instrument; the instrument shall have a valid calibration record. Interior and exterior dry film lining thicknesses are controlled and measured and sheets that do not meet the required specification, in accordance with the Manufacturer's specified parameters, shall be rejected at this point.
6. After inspection the sheets shall be fired through the furnace at approximately 1500°F in accordance with the Manufacturer's procedures.
7. A second coat of tan rich glass slip shall be continuously applied to both sides of the sheets. The internal glass is a dedicated high performance material and delivers exceptional resistance to chemical corrosion.
8. Stages D.4 to D.6 are repeated.
9. The firing processes shall form a composite glass surface having general acid/alkali resistance to solutions in the range pH 2 to pH 11 subject to temperature and chemical composition.
10. Tank internal sheet color shall be specified by the Manufacturer. Standard tank external color shall be Tan (Munsell 7.5YR 7/4).
11. Sample tests shall be carried out in accordance with ISO 28765 section 10 by the Manufacturer to ensure that enamel materials meet the physical properties and chemical resistance characteristics specified as published in the Manufacturer's product Quality Standard. The Manufacturer shall provide published product Quality Standards detailing the International Standards used for testing.
12. The tank manufacturers glass lining product shall be independently audited on an annual basis to confirm compliance to ISO28765:2017; and must provide a Certificate of Conformity from an independent source.
13. The sheet edges shall receive an electrostatically applied pre-coat to achieve a durable glass lining. A further factory applied lining of a quick drying, single component stabilizing finish, reinforced with flat self-leaving glass flake, is applied to the sheet edges after firing and before packing. This material provides additional protection to the edges during transit, site storage and installation.
14. Correct joint design methodology shall be used to uniformly distribute the load over a sufficient surface area to maximize bond strength. Full sealant over pointing from the sheet edge and extending onto the next ring of sheets shall be used to ensure the tank fluid pressure maintains a low stress sealant joint and protects the sheet edges from liquid and mechanical hazards.

15. Full protection and sealing of the sheet edges and tank overlap shall be achieved by the application of polyurethane sealant specifically designed for use with glass-fused-to-steel tanks. (Refer to Section 3.0 paragraph E)

E. Factory Inspection

1. Inspection procedures shall be carried out within the Manufacturer's plant under ISO 9001:2000 Quality Management System.
2. A color comparator shall be used to measure the color of the external sheet surfaces. Electronic color control shall be used to ensure that allowable color uniformity is achieved within the Manufacturer's specified parameters. Sheets of a color outside of these limits shall be rejected.
3. The instrument used shall have a valid calibration record and shall be regularly checked against the Manufacturer's approved calibration standard.
4. Color measurement frequency shall be every 15 minutes and following every color and sheet thickness change.
5. Finished sheets shall be inspected for lining thickness using an approved instrument suitable for a measurement range of 0-20 mils.
6. The instrument shall have a valid calibration record and shall be regularly checked against the Manufacturer's approved calibration standard.
7. The thickness of the glass on the inside surface of every sheet shall be maintained in the range from 11.0-18.1 mils.
8. The thickness of the glass on the outside surface of every sheet shall be maintained in the range from 9.8-19.7 mils.
9. Sheets having a glass thickness outside these ranges shall be rejected.
10. The outside surface of all sheets shall be inspected visually under good daylight (or equivalent lighting) for defects in the glass lining.
11. Any sheet having visible defects larger than 0.039 IN shall be rejected. Any sheet having more than three visible defects per square yard of the total sheet area shall be rejected.
12. Any visible defects on the outside surface of accepted sheets shall be repaired using a repair material approved by the Manufacturer for this purpose and applied according to the repair material Manufacturer's instructions.
13. The inside sheet surface shall be inspected using a high voltage tester approved by the Manufacturer for this purpose and used in accordance with Test A of EN 14430.
14. Inspection shall be carried out on every sheet and any sheet having any discontinuities shall be rejected.
15. No factory touch-ups or repairs shall be permitted on any inside surface discontinuity found during inspection.
16. The tester shall have an accuracy of $\pm 1\%$ such that the voltage at the test probe and a test voltage of 1100 volts shall be used. The tester shall have a valid calibration record.
17. Only finished sheets with zero glass continuity defects and no factory repairs on the inside surfaces shall be released for packing. The tank manufacturer shall supply quality standard documentation to prove compliance.
18. An owner's representative may be present during these inspection procedures at their own cost.

- F. Packaging
1. All sheets that pass Factory Inspection and Quality Control checks shall be protected from damage prior to packing for shipment.
 2. Heavy paper or plastic foam sheets shall be placed between each panel to eliminate sheet-to-sheet abrasion during shipment.
 3. Individual stacks of panels shall be wrapped in heavy mil black plastic and steel banded to special wood pallets built to the roll-radius of the tank panels to eliminate contact or movement of finished panels during shipment.
 4. Shipment from the factory shall be by ship, truck, hauling the tank components exclusively.

2.05 ROOF

- A. Geodesic Dome Roof
1. The roof shall be constructed of non-corrugated triangular aluminum panels which are sealed and firmly clamped in an interlocking manner to a fully triangulated aluminum space truss system of wide flange extrusions, thus forming a dome structure. The panels shall be painted in the same color as the tank body.
 2. The roof shall be a dome structure conforming to AWWA Standard D108 latest edition "Aluminum Dome Roofs for Water Storage Facilities". The dome shall conform to the dimensions of the tank using a fully triangulated space truss and non-corrugated closure panels. It shall be clear-span and designed to be self-supporting from the periphery structure with primary horizontal thrust contained by an integral tension ring. Provision shall be made in the design for thermal expansion of all dome parts over a temperature range of -40°F to +140°F.
 3. The dome surface paneling shall be designed as a watertight system under all design load and temperature conditions. All raw edges of the aluminum panels shall be covered, sealed, and firmly clamped with batten bars in an interlocking manner to prevent slipping or disengagement under design load and temperature changes.
 4. The roof framing system shall be designed as a three-dimensional truss with moment-resisting joints. The design must consider the increased minor axis bending and compression induced in the framing members due to tension in the roof panels.
 5. The dome and tank shall be designed to act as an integral unit. The tank shall be designed to support an aluminum dome roof including all specified live loads.
 - a. The structural analysis shall be performed using stiffness analysis models. The structural computer models shall include the effect of geometry irregularities such as dormer openings and perimeter support members.
 - b. Connection forces shall be transferred through gusset plates connected to the top and bottom flanges of the beam-struts. The connections shall be designed as moment connections; a minimum of four bolts shall be used to connect the gusset plate to each strut flange.
 - c. The design of welded components shall be in accordance with the Aluminum Structural Welding Code ANSI/AWS D1.1/D1.2.
 - d. The vertical loads transferred from the roof to the tank shall be in-line with the tank wall. The transfer of horizontal loads to the tank shall be minimized by means of low friction slide supports. Radial forces applied to the tank

shall not exceed 10% of the vertical reactions.

- e. Dissimilar materials which are not compatible shall be isolated by an insulator to prevent galvanic corrosion.

B. Geodesic Dome Materials:

1. Triangulated dome frame struts: 6082/T6 aluminum.
2. Structural frame gussets: 0.393 IN minimum thickness 6082/T651 aluminum.
3. Triangular closure panels: 0.048 IN minimum thickness 3003-H16 aluminum sheet.
4. Triangular Skylight panels, (if specified): 0.236 IN thick clear acrylic. Skylight square footage shall be 1% of covered area, minimum.
5. Clamping bars must have M8-bolts CNC-drilled holes to ensure a 360° bolt grip for greater clamping force.
6. Perimeter tension/compression ring: 6082/T6 aluminum.
7. Fasteners: Stainless Steel 316L/Grade 80 for bolts and nuts.
8. Sealant: Silicone, conforming to Federal Specification TT-S-00230 as manufactured by Pecora, #864, or equal.
9. Gaskets: Silicone, conforming to Federal Specification ZZ-R-765, class 2, grade SO as manufactured by General Electric, #SE-44/88, or Neoprene equal.
10. Silicone free hubcaps to allow quick and precise installation.
11. Anchor Bolts: Stainless Steel 316L/Grade 80.
12. Dormers, doors, vents and hatches: 5754 aluminum, 0.078 IN-0.118 IN nominal thickness.

C. Roof Vent

1. A properly sized vent assembly in accordance with AWWA D103 latest edition shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum design rate of water fill or withdrawal, the resulting interior pressure or vacuum will not exceed tank allowable pressure and vacuum design.
2. The overflow pipe shall not be considered to be a tank vent.
3. The vent shall be so designed in construction as to prevent the entrance of birds and/or animals by including an expanded aluminum screen (0.5 IN) opening. A four (4) panel insect screen of 20 to 25 mesh polyester monofilament shall be provided and designed to open should the screen become plugged by ice formation. Vent shall be designed for a maximum fill rate of 17,500 gpm and a maximum discharge rate of 11,500 gpm.

D. Roof Hatch

1. Roof hatch shall measure 30 IN in area and meet AWWA D103 latest edition requirements.
2. Hatch shall be located to enable a person standing on the step off platform to easily open it.
3. Hatch shall be lockable.

- E. Dome Access Accessories
 - 1. Provide a 7 FT handrail on each side of roof hatch.
 - 2. Provide guardrail with rails on either side, with stainless steel cable, and non-skid tape surface to center vent.
 - 3. Guardrail, ladder, and cage can be aluminum color.

2.06 APPURTENANCES

- A. Fill Line
 - 1. Tank contractor shall provide a 12 IN diameter 316L stainless steel pipe inside the tank to a height as shown on the Drawings. See Drawings for location, height, and appurtenances. Connect to the 12 IN W at bottom of tank and provide 316 stainless steel supports and hardware as required to support the pipe to the inside tank wall.
- B. Drain Line
 - 1. Tank contractor shall provide a 12 IN diameter 316L stainless steel pipe inside the tank as shown on the Drawings. See Drawings for location, height, and appurtenances. Connect to the 12 IN W-D at bottom of tank.
 - 2. Tank contractor shall provide a silt stop inside the tank for the drain outlet.
- C. Overflow pipe
 - 1. Provide a 12 IN, SCH 10 carbon steel pipe.
 - 2. Pipe exterior finish coat to be Sherwin Williams Acrolon 218, color matched to tank shell, consisting of:
 - a. Prime with SW DTM Wash Primer
 - b. Finish Coat Acrolon 218, 3.0-6.0 mils DFT
 - 3. Pipe interior coating shall be: Sherwin Williams potable water epoxy system (color white) consisting of:
 - a. Prime with Urethane Zinc Rich Primer , 2.5 – 3.5 DFT
 - b. Finish Coat with Macropoxy , 6.0- 8.0 DFT
 - 4. Pipe to discharge above adjacent grade (see Drawings for height above grade); stainless steel insect screen at discharge to block insects (see Drawings for mesh size).
- D. Pipe Connections
 - 1. Where pipe connections are shown to pass through tank panels, they shall be field located, saw cut, (acetylene torch cutting or welding is not permitted), and utilize an interior and exterior flange assembly. Tank shell reinforcing shall comply with AWWA D103 latest edition. The tank manufacturer's recommended sealant shall be applied on any cut panel edges or bolt connections.
 - 2. All pipe connection sizing and orientation are shown on the plans.
- E. Outside Tank Ladder
 - 1. Provide an outside tank ladder as shown on the contract drawings.
 - 2. Ladders shall be fabricated of aluminum and utilize grooved, skid-resistant rungs.
 - 3. A lockable ladder gate shall be provided to prevent access to the bottom 8 feet of ladder.

- F. External Platform
 - 1. Provide a 3 FT x 3 FT galvanized steel platform at tank eave elevation for geodesic domes.
- G. Access Hatches
 - 1. Provide two bottom access hatches as shown on the contract drawings and in accordance with AWWA D103 latest edition.
 - 2. The manhole opening shall be a minimum of 30 IN in diameter; the access hatch (shell manhole) and the tank shell reinforcing shall comply with AWWA D103 latest edition, Sec.7.1. The access doors shall be of galvanized steel.
- H. Identification Plate
 - 1. A manufacturer's nameplate shall list the tank serial number, tank diameter and height, and maximum design capacity. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5) feet from grade elevation in a position of unobstructed view.
- I. Cathodic Protection (Passive Anodes)
 - 1. Tank supplier shall provide simple passive cathodic protection system consisting of floor mounted sacrificial anodes.

PART 3 – EXECUTION

3.01 ERECTION

- A. Foundation
 - 1. The tank foundation is a part of this contract and shall be installed by the Authorized Distributor or approved subcontractor.
 - 2. A site-specific foundation design shall be stamped by a civil engineer with a PE license for the state of Colorado.
 - 3. See Drawings for tank ringwall foundation design.
 - 4. Place a minimum 0.5 IN thick cane fiber mat over entire tank footprint directly below tank floor panels.
- B. Tank Floor
 - 1. All floor sheets shall be subject to the same material specification and glass lining specification as specified for the tank shell wall sheets. All floor sheet surfaces on the inside of the tank shall also fully comply with the Factory Inspection section of this specification. All floor sheets on the inside of the tank shall undergo the same high voltage testing as the tank shell sheets. Inspection shall be carried out on every sheet and any sheet having any discontinuities shall be rejected. No factory touch-ups or repairs shall be permitted on any tank floor sheet inside contact surface discontinuity found during inspection.

C. Sidewall Structure

1. Field erection of the glass-fused-to-steel lined, bolted steel water storage tank shall be in strict accordance with the procedures outlined in the Manufacturer's erection manual using factory trained and certified erectors.
2. Specialized erection jacks and building equipment developed and manufactured by the tank manufacturer shall be used to erect the tanks.
3. Particular care shall be taken in handling and bolting of the tank panels and members to avoid abrasion of the lining system. Prior to a liquid test, all surface areas shall be visually inspected.
4. An electrical leak test shall be performed during erection using a wet sponge, nine (9) volt leak detection device. All electrical leak points found on the inside surface shall be repaired in accordance with manufacturers published touch up procedure.
5. No backfill shall be placed against the tank sidewall without prior written approval of the Engineer and design review of the tank manufacturer. Any backfill shall be placed according to the strict instructions of the tank Manufacturer.

3.02 FIELD TESTING

A. Hydrostatic

1. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling the tank to its overflow elevation and observing the water level drop for a period of 24 hours. The tank surface shall be observed as well for any signs of leakage.
2. Any visible leaks disclosed by this test shall be corrected by the Authorized Distributor in accordance with the Manufacturer's recommendations.
3. Water required for testing shall be furnished by the Owner at the time of tank erection completion and at no charge. Disposal of test water shall be the responsibility of the Contractor. Water required for re-testing will be furnished by the Owner but will be paid for by the Contractor.

B. Disinfection

1. Prime Contractor shall disinfect the tank prior to startup according to AWWA Standard C652 latest edition "Disinfection of Water Storage Facilities".
2. Disinfection shall not take place until tank sealant is fully cured.
3. Contractor shall fill tank to 2 FT and perform Bac-T sampling. Once Bac-T test results are negative and approved by Owner, Contractor shall fill tank to the maximum operating level.
4. Acceptable forms of chlorine for disinfection shall be:
 - a. Liquid chlorine as specified in AWWA C652 latest edition.
 - b. Sodium hypochlorite as specified in AWWA C652 latest edition.
5. Acceptable methods of chlorination shall be:
 - a. Chlorination method 1 as outlined in AWWA C652 latest edition.
 - b. Chlorination method 2 as outlined in AWWA C652 latest edition.
 - c. Chlorination method 3 as outlined in AWWA C652 latest edition.

- D. Water Tank Settlement Monitoring:
1. To verify that the tank foundation remains level (within a differential settlement tolerance value of ½ in) and that the differential settlement has not adversely affected the structure, the Contractor shall install four stainless steel monuments placed into the foundation and perform surveys at specified milestones. The monuments shall be installed at 90-degree intervals. The four monuments shall be surveyed by a licensed surveyor on five separate occasions:
 - a. At the completion of the tank foundation, prior to erection of the tank
 - b. Just prior to filling the tank with water
 - c. 24 hours after the tank is filled to the overflow level
 - d. Seven days after the tank is filled to the overflow level
 - e. During the one year anniversary inspection
 2. Each survey shall use the same control points and take elevations at each of the monuments. The results of the survey shall be submitted to the Owner and Engineer within three days after each survey is completed.

3.03 TANK MANUFACTURER'S WARRANTY

- A. 1 Year Material and Workmanship Warranty
1. The tank structure is warranted to be free from defects due to faulty workmanship or materials, under normal and proper use, maintenance and operation, during the period expiring on the earlier of (i) one year after liquid is first introduced to the tank or (ii) 14 calendar months after shipment from the factory.
- B. 5 Year Limited Warranty
1. Glass lined metal sheets manufactured by the Company and incorporated into the goods (but no other products or materials) are warranted to be free from defects due to faulty workmanship or materials for a period of 5 years from the date of delivery of the goods into which they have been incorporated.

END OF SECTION

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TOWN OF EAGLE, COLORADO
RESOLUTION NO. 61
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A TEMPORARY CONSTRUCTION EASEMENT AGREEMENT WITH EAGLE
CEMETERY DISTRICT FOR THE CEMETERY TANK REPLACEMENT

WHEREAS, the Eagle Cemetery District owns the real property more particularly described in Exhibit A of the Temporary Construction Easement Agreement, attached hereto; and

WHEREAS, the Town desires to acquire an easement on such property.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AS FOLLOWS:

Section 1. The Temporary Construction Easement Agreement with the Eagle Cemetery District is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON _____, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

TEMPORARY CONSTRUCTION EASEMENT AGREEMENT

This TEMPORARY CONSTRUCTION EASEMENT AGREEMENT (the "Agreement") is made and executed this 10 day of September, 2024 (the "Effective Date"), by and between Eagle Cemetery District, a Colorado special district with an address of P.O. Box 514, Eagle, CO 81631 ("Grantor"), and the Town of Eagle, a Colorado home rule municipality with an address of P.O. Box 609, Eagle, CO 81631 (the "Town") (each a "Party" and collectively the "Parties").

WHEREAS, Grantor owns the real property described in **Exhibit A** (the "Easement Property");

WHEREAS, the Town desires to acquire a temporary easement across the Easement Property for the purpose of storing materials, supplies, materials and equipment, access for Town equipment and personnel, and for such other purposes as the Town deems necessary in connection with installation of certain water utility lines, communication equipment, conduits and related appurtenances and facilities on adjacent properties (the "Easement Purposes"); and

WHEREAS, for these purposes, Grantor is willing to convey a temporary construction easement to the Town, as further set forth herein.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, Grantor and the Town mutually agree as follows:

1. Grant. Grantor hereby grants to the Town, its successors and assigns, lessees, licensees and agents, a temporary, nonexclusive easement (the "Easement") for the Easement Purposes. The Town shall have and exercise the right to ingress and egress in, to, over and across the Easement Area to the extent necessary for the full enjoyment of the rights granted by Grantor to the Town hereunder.
2. Term. The term of the Agreement shall commence this 10 day of September, 2024 and shall terminate on project completion. This Agreement may be extended by mutual agreement of the Parties.
3. Town's Obligations. The Town agrees that it shall cause any of the Easement Property, including landscaping and fences, which is disturbed during the term of this Agreement, to be returned to its original condition, or as near thereto as may be reasonably accomplished, at the Town's expense.
4. Inspection. Prior to the commencement of construction of the Project, Grantor shall allow the Town and its authorized agents to inspect the Property and the improvements thereon to determine pre-construction conditions. Grantor shall have the right to have a representative present during such inspection. Prior to the commencement of construction of the Project, the Town shall generate a written report from such inspection and provide a copy of the same to Grantor for its input. The final report shall be used to determine whether any landscaping,

fencing, foundation or other damage was caused by the Town's construction activities on the Property under this Agreement.

5. Hold Harmless. Once the Easement term expires, Grantor shall hold the Town harmless for any work done on the Easement Property, including the restoration of landscaping or fences, and Grantor shall be solely responsible for any maintenance or repair on the Property and shall assume all liability for the Property.

6. Reserved Rights. Subject to the Town's enjoyment of the Easement pursuant to this Agreement, Grantor retains all rights to use and enjoy the Easement Property in any manner so long as such use does not unreasonably interfere with the Town's rights granted herein.

7. Warranty. Grantor warrants that it has the full right and legal authority to make the grant of Easement contained in this Agreement.

8. Recordation. Except as otherwise expressly provided herein, all provisions of this Agreement, including the benefits, burdens and covenants, are intended to run with the land and shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. The Town shall record this Agreement in timely fashion in the official records of Eagle County and may re-record it at any time as may be required to preserve its rights in this Agreement.

9. No Merger. It is the express intent of the Parties that the doctrine of merger shall not apply to this Agreement and there will be no merger of estate between the Easement and the Easement Property.

10. Miscellaneous.

a. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Eagle County, Colorado.

b. *Integration*. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

c. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

d. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

e. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent prepaid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability*. If any provision of this Agreement is found by a court of competent

jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification.* This Agreement may only be modified upon written agreement of the Parties.

h. *Governmental Immunity.* The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town, its officers, attorneys, or employees.

i. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt, or liability beyond the current fiscal year.

j. *Force Majeure.* No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake, or perform any of the duties under this Agreement due to acts of God, floods, storms, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

TOWN OF EAGLE

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

EAGLE CEMETERY DISTRICT

By _____

STATE OF COLORADO)
) ss.
COUNTY OF _____)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this
____ day of _____, 2024, by _____ as the
_____ of _____.

My commission expires:
(SEAL)

Notary Public

EXHIBIT "A"

NE1/4 SECTION 5
T5S, R84W, 6TH P.M.
EAGLE COUNTY

OWNER:
100 DOUBLE R DR, LLC
B.615 P.732

NW COR.
TRACT 4

N. LINE TRACT 4
BASIS OF BEARING
S89°51'28"E 240.00'

NE COR.
TRACT 4

L9

S30°31'46"W
8.68'(TIE)

POINT OF
BEGINNING

LINE TABLE		
NO.	BEARING	DISTANCE
L1	S23°18'56"E	75.51'
L2	S34°09'37"E	139.53'
L3	S24°30'27"W	124.65'
L4	N52°00'18"W	160.35'
L5	N39°03'11"W	150.63'
L6	N62°02'37"E	72.84'
L7	N18°03'10"E	22.81'
L8	N19°26'52"E	28.47'
L9	S89°54'06"E	83.85'

OWNER:
EAGLE CEMETERY
DISTRICT
TRACT 4
THE TERRACE FILING III
REC. NO. 532324

TEMPORARY SHARED
USE EASEMENT
AREA=41,730 S.F.±
OR 0.958 ACRES±

COMMON AREA
THE OVERLOOK
TOWNHOMES PHASE III
REC. NO. 708717

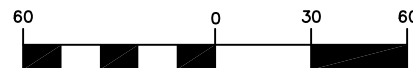
LOT 67
THE TERRACE
FILING III
REC. NO. 532324

LOT 68A
THE TERRACE FILING III
REC. NO. 532324

LOT 68B
THE TERRACE FILING III
REC. NO. 532324

10' U.E.
PER PLAT

CONDOR DRIVE
(50' R/W)



1 inch = 60 ft.

- 1.) PARCEL OWNERSHIP IS BASED ON THE RECORDS OF THE COUNTY ASSESSOR.
- 2.) ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS AFTER THE DATE OF THE CERTIFICATION SHOWN HEREON.
- 3.) THE ONLY PURPOSE OF THIS EXHIBIT IS TO SHOW THE LOCATION OF THE EASEMENT(S).
- 4.) THIS DOCUMENT SHALL BE CONSIDERED NULL AND VOID IF IT DOES NOT BEAR THE ORIGINAL SIGNATURE AND SEAL OF THE PROFESSIONAL LAND SURVEYOR OR IF ALTERED IN ANY WAY.



9025 E. KENYON AVENUE, SUITE 150
DENVER, COLORADO 80237
TEL: 303-753-9799

DRN. BY: A.S.
CHKD. BY: R.M.
DATE: 12/08/23
SCALE: 1" = 60'

FILE: R13644
SHEET: 1 OF 2
W/O #:

**TEMPORARY
SHARED USE**

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 5 SOUTH, RANGE 84 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EAGLE, STATE OF COLORADO, ALSO BEING A PORTION OF TRACT 4, THE TERRACE FILING III, FILED IN THE EAGLE COUNTY CLERK AND RECORDER'S OFFICE DESCRIBED AT RECEPTION NO. 532324, SAID PARCEL OF LAND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

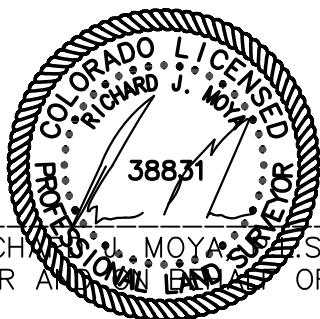
BASIS OF BEARING OF THIS DESCRIPTION IS ALONG THE NORTH LINE OF SAID TRACT 4, ASSUMED TO BEAR S89°51'28"E A DISTANCE OF 240.00 FEET FROM THE NORTHWEST CORNER OF SAID TRACT 4 TO A NORTHEAST CORNER OF SAID TRACT 4;

BEGINNING AT A POINT THAT BEARS S30°31'46"W A DISTANCE OF 8.68 FEET FROM SAID NORTHEAST CORNER;

THENCE S23°18'56"E A DISTANCE OF 75.51 FEET; THENCE S34°09'37"E A DISTANCE OF 139.53 FEET; THENCE S24°30'27"W A DISTANCE OF 124.65 FEET; THENCE N52°00'18"W A DISTANCE OF 160.35 FEET; THENCE N39°03'11"W A DISTANCE OF 150.63 FEET; THENCE N62°02'37"E A DISTANCE OF 72.84 FEET; THENCE N18°03'10"E A DISTANCE OF 22.81 FEET; THENCE N19°26'52"E A DISTANCE OF 28.47 FEET; THENCE S89°54'06"E A DISTANCE OF 83.85 FEET TO THE POINT OF BEGINNING; WHENCE SAID NORTHWEST CORNER BEARS N88°02'18"W A DISTANCE OF 235.73 FEET.

SAID PARCEL CONTAINS 41,730 SQUARE FEET OR 0.958 ACRES, MORE OR LESS.

I, THE UNDERSIGNED, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THIS EXHIBIT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.



RICHARD J. MOYA, L.S. 38831
FOR AND ON BEHALF OF PRECISION SURVEY & MAPPING, INC.

12/08/23

DATE

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 62
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A UTILITY EASEMENT AGREEMENT WITH EAGLE CEMETERY DISTRICT
FOR THE CEMETERY TANK REPLACEMENT

WHEREAS, the Eagle Cemetery District owns the real property more particularly described in Exhibit A of the Utility Easement Agreement, attached hereto; and

WHEREAS, the Town desires to acquire an easement on such property.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AS FOLLOWS:

Section 1. The Utility Easement Agreement with the Eagle Cemetery District is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON _____, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

UTILITY EASEMENT AGREEMENT

This UTILITY EASEMENT AGREEMENT (the "Agreement") is made and entered into this 10 day of September, 2024 (the "Effective Date"), by and between Eagle Cemetery District, a Colorado special district with an address of P.O. Box 514, Eagle, CO 81631 ("Grantor"), and the Town of Eagle, a Colorado home rule municipality with an address of P.O. Box 609, Eagle, CO 81631 (the "Town") (each a "Party" and collectively the "Parties").

WHEREAS, Grantor owns the real property more particularly described in **Exhibit A** (the "Easement Property");

WHEREAS, The Town desires to acquire an easement to enter, reenter, occupy and use the Easement Property to construct, install, monitor, maintain, repair, replace, operate and use a water utility lines, communication equipment, conduits, and related appurtenances and facilities deemed necessary, desirable or required by the Town over, across and under the Easement Property (the "Easement Purposes"); and

WHEREAS, for this purpose, Grantor is willing to convey a utility easement to the Town, as further set forth herein.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained here, Grantor and the Town mutually agree as follows:

1. Grant of Easement. Grantor hereby grants to the Town, its successors and assigns, lessees, licensees, and agents, a permanent, perpetual, non-exclusive easement (the "Easement") for the Easement Purposes, together with the right of The Town and its employees, agents, contractors, representatives, successors, and assigns shall have and exercise the right of ingress and egress in, to, through, over, under, above and across the Easement Property for access for the Easement Purposes.
2. Grantor's Obligation. Grantor shall not install or permit the installation of any landscaping, fence, wall or structure (above or below ground) within the Easement Property that would interfere with the Town's facilities or rights as herein granted. The Parties agree that other utilities and facilities may be installed in the Easement Property so long as such utilities do not interfere with the Town's rights as herein granted, the Town's facilities or use of the Easement and Easement Property.
3. Reserved Rights. Subject to the Town's enjoyment of the Easement pursuant to this Agreement, Grantor retains all rights to use and enjoy the Easement Property in any manner so long as such use does not unreasonably interfere with the Town's rights granted herein.
4. Warranty. Grantor warrants that it has the full right and legal authority to make the grant of Easement contained in this Agreement.

5. Recordation. Except as otherwise expressly provided herein, all provisions of this Agreement, including the benefits, burdens and covenants, are intended to run with the land and shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. The Town shall record this Agreement in timely fashion in the official records of Eagle County and may re-record it at any time as may be required to preserve its rights in this Agreement.

6. No Merger. It is the express intent of the Parties that the doctrine of merger shall not apply to this Agreement and there will be no merger of estate between the Easement and the Easement Property.

7. Miscellaneous.

a. *Governing Law and Venue.* This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Eagle County, Colorado.

b. *Integration.* This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

c. *No Waiver.* Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

d. *Third Parties.* There are no intended third-party beneficiaries to this Agreement.

e. *Notice.* Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent prepaid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability.* If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification.* This Agreement may only be modified upon written agreement of the Parties.

h. *Governmental Immunity.* The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town, its officers, attorneys, or employees.

i. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is

j. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake, or perform any of the duties under this Agreement due to acts of God, floods, storms, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

TOWN OF EAGLE

ATTEST:

EAGLE CEMETERY DISTRICT

By _____

STATE OF COLORADO)
) ss.
COUNTY OF)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this _____ day of _____, 2024, by _____ as the _____ of _____.

(SEAL)

Notary Public

EXHIBIT "A"

E. SIXTH ST.
(80' R.O.W.)

NE COR.
BOOK 234
PAGE 866

NW COR.
BOOK 234
PAGE 866

S01°37'03"W
40.59'(TIE)

N. LINE BOOK 234 PAGE 866
BASIS OF BEARING
S89°38'57"E 263.90'

POINT OF
BEGINNING

40' UTILITY
EASEMENT

NW1/4 SECTION 4
T5S, R84W, 6TH P.M.
EAGLE COUNTY

S'LY SIDE
40' UTILITY
EASEMENT

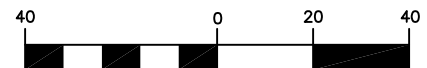
PERMANENT SHARED
USE EASEMENT
AREA=140 S.F.±
OR 0.003 ACRES±

OWNER:
EAGLE CEMETERY ASSOCIATION DISTRICT
BOOK 234 PAGE 866

E. LINE
BOOK 234
PAGE 866



LINE TABLE		
NO.	BEARING	DISTANCE
L1	S01°37'03"W	8.27'
L2	N73°43'08"W	35.07'
L3	S87°21'32"E	33.94'



1 inch = 40 ft.

- 1.) PARCEL OWNERSHIP IS BASED ON THE RECORDS OF THE COUNTY ASSESSOR.
- 2.) ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS AFTER THE DATE OF THE CERTIFICATION SHOWN HEREON.
- 3.) THE ONLY PURPOSE OF THIS EXHIBIT IS TO SHOW THE LOCATION OF THE EASEMENT(S).
- 4.) THIS DOCUMENT SHALL BE CONSIDERED NULL AND VOID IF IT DOES NOT BEAR THE ORIGINAL SIGNATURE AND SEAL OF THE PROFESSIONAL LAND SURVEYOR OR IF ALTERED IN ANY WAY.



9025 E. KENYON AVENUE, SUITE 150
DENVER, COLORADO 80237
TEL: 303-753-9799

DRN. BY: A.S.

CHKD. BY: R.M.

DATE: 12/08/23

SCALE: 1" = 40'

FILE: R13644

SHEET: 1 OF 2

W/O #:

**PERMANENT
SHARED USE**

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 4, TOWNSHIP 5 SOUTH, RANGE 84 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EAGLE, STATE OF COLORADO, ALSO BEING A PORTION OF LANDS DESCRIBED AT BOOK 234 AND PAGE 866, FILED IN THE EAGLE COUNTY CLERK AND RECORDER'S OFFICE, SAID PARCEL OF LAND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

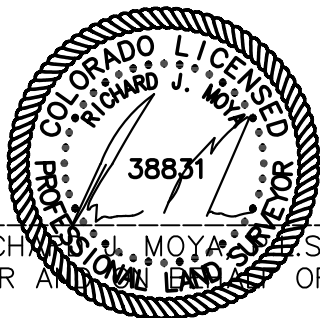
BASIS OF BEARING OF THIS DESCRIPTION IS ALONG THE NORTH LINE OF SAID LANDS, ASSUMED TO BEAR S89°38'57"E A DISTANCE OF 263.90 FEET FROM THE NORTHWEST CORNER OF SAID LANDS TO THE NORTHEAST CORNER OF SAID LANDS;

BEGINNING AT A POINT ON THE EAST LINE OF SAID LANDS, SAID POINT BEARS S01°37'03"W A DISTANCE OF 40.59 FEET FROM SAID NORTHEAST CORNER;

THENCE S01°37'03"W ALONG SAID EAST LINE A DISTANCE OF 8.27 FEET; THENCE N73°43'08"W A DISTANCE OF 35.07 FEET TO THE SOUTHERLY SIDE OF A 40' UTILITY EASEMENT; THENCE S87°21'32"E ALONG SAID SOUTHERLY SIDE A DISTANCE OF 33.94 FEET TO THE POINT OF BEGINNING; WHENCE SAID NORTHWEST CORNER BEARS N80°52'41"W A DISTANCE OF 266.12 FEET.

SAID PARCEL CONTAINS 140 SQUARE FEET OR 0.003 ACRES, MORE OR LESS.

I, THE UNDERSIGNED, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THIS EXHIBIT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.



RICHARD J. MOYNIHAN, P.L.S. 38831 12/08/23
DATE
FOR AND ON BEHALF OF PRECISION SURVEY & MAPPING, INC.

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 63
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A PERMANENT UTILITY EASEMENT AGREEMENT WITH KAIBAB
HOMEOWNERS ASSOCIATION FOR THE CEMETERY TANK REPLACEMENT

WHEREAS, the Kaibab Homeowners Association owns the real property more particularly described in Exhibit A of the Utility Easement Agreement, attached hereto; and

WHEREAS, the Town desires to acquire an easement on such property.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO AS FOLLOWS:

Section 1. The Permanent Utility Easement Agreement with Kaibab Homeowners Association is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON _____, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

UTILITY EASEMENT AGREEMENT

This UTILITY EASEMENT AGREEMENT (the "Agreement") is made and entered into this 10 day of September, 2024 (the "Effective Date"), by and between Kaibab Homeowners Association, a Colorado corporation with an address of 1036 Polar Star Drive, Eagle, CO 81631 ("Grantor") , and the Town of Eagle, a Colorado home rule municipality with an address of P.O. Box 609, Eagle, CO 81631 (the "Town") (each a "Party" and collectively the "Parties").

WHEREAS, Grantor owns the real property more particularly described in **Exhibit A** (the "Easement Property");

WHEREAS, The Town desires to acquire an easement to enter, reenter, occupy and use the Easement Property to construct, install, monitor, maintain, repair, replace, operate and use a water storage tank, communication equipment for Town owned services and connectivity, conduits, and related appurtenances and facilities deemed necessary, desirable or required by the Town over, across and under the Easement Property (the "Easement Purposes"); and

WHEREAS, for this purpose, Grantor is willing to convey a utility easement to the Town, as further set forth herein.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained here, Grantor and the Town mutually agree as follows:

1. Grant of Easement. Grantor hereby grants to the Town, its successors and assigns, lessees, licensees, and agents, a permanent, perpetual, non-exclusive easement (the "Easement") for the Easement Purposes, together with the right of The Town and its employees, agents, contractors, representatives, successors, and assigns shall have and exercise the right of ingress and egress in, to, through, over, under, above and across the Easement Property for access for the Easement Purposes.
2. Grantor's Obligation. Grantor shall not install or permit the installation of any landscaping, fence, wall or structure (above or below ground) within the Easement Property that would interfere with the Town's facilities or rights as herein granted. The Parties agree that other utilities and facilities may be installed in the Easement Property so long as such utilities do not interfere with the Town's rights as herein granted, the Town's facilities or use of the Easement and Easement Property.
3. Reserved Rights. Subject to the Town's enjoyment of the Easement pursuant to this Agreement, Grantor retains all rights to use and enjoy the Easement Property in any manner so long as such use does not unreasonably interfere with the Town's rights granted herein. Grantor further reserves the right to negotiate with for-profit entities who may request access to or use of the Town's easement for communication or telecommunication services.
4. Warranty. Grantor warrants that it has the full right and legal authority to make the grant of Easement contained in this Agreement.

5. Recordation. Except as otherwise expressly provided herein, all provisions of this Agreement, including the benefits, burdens and covenants, are intended to run with the land and shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. The Town shall record this Agreement in timely fashion in the official records of Eagle County and may re-record it at any time as may be required to preserve its rights in this Agreement.

6. No Merger. It is the express intent of the Parties that the doctrine of merger shall not apply to this Agreement and there will be no merger of estate between the Easement and the Easement Property.

7. Miscellaneous.

a. *Governing Law and Venue.* This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Eagle County, Colorado.

b. *Integration.* This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

c. *No Waiver.* Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

d. *Third Parties.* There are no intended third-party beneficiaries to this Agreement.

e. *Notice.* Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent prepaid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability.* If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification.* This Agreement may only be modified upon written agreement of the Parties.

h. *Governmental Immunity.* The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town, its officers, attorneys, or employees.

i. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is

j. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake, or perform any of the duties under this Agreement due to acts of God, floods, storms, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

TOWN OF EAGLE

ATTEST:

KAIBAB OWNERS ASSOCIATION

By _____

STATE OF COLORADO)
) ss.
COUNTY OF)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this _____ day of _____, 2024, by _____ as the _____ of _____.

My commission expires:

(SEAL)

Notary Public

EXHIBIT "A"

NW1/4 SECTION 4
T5S, R84W, 6TH P.M.
EAGLE COUNTY

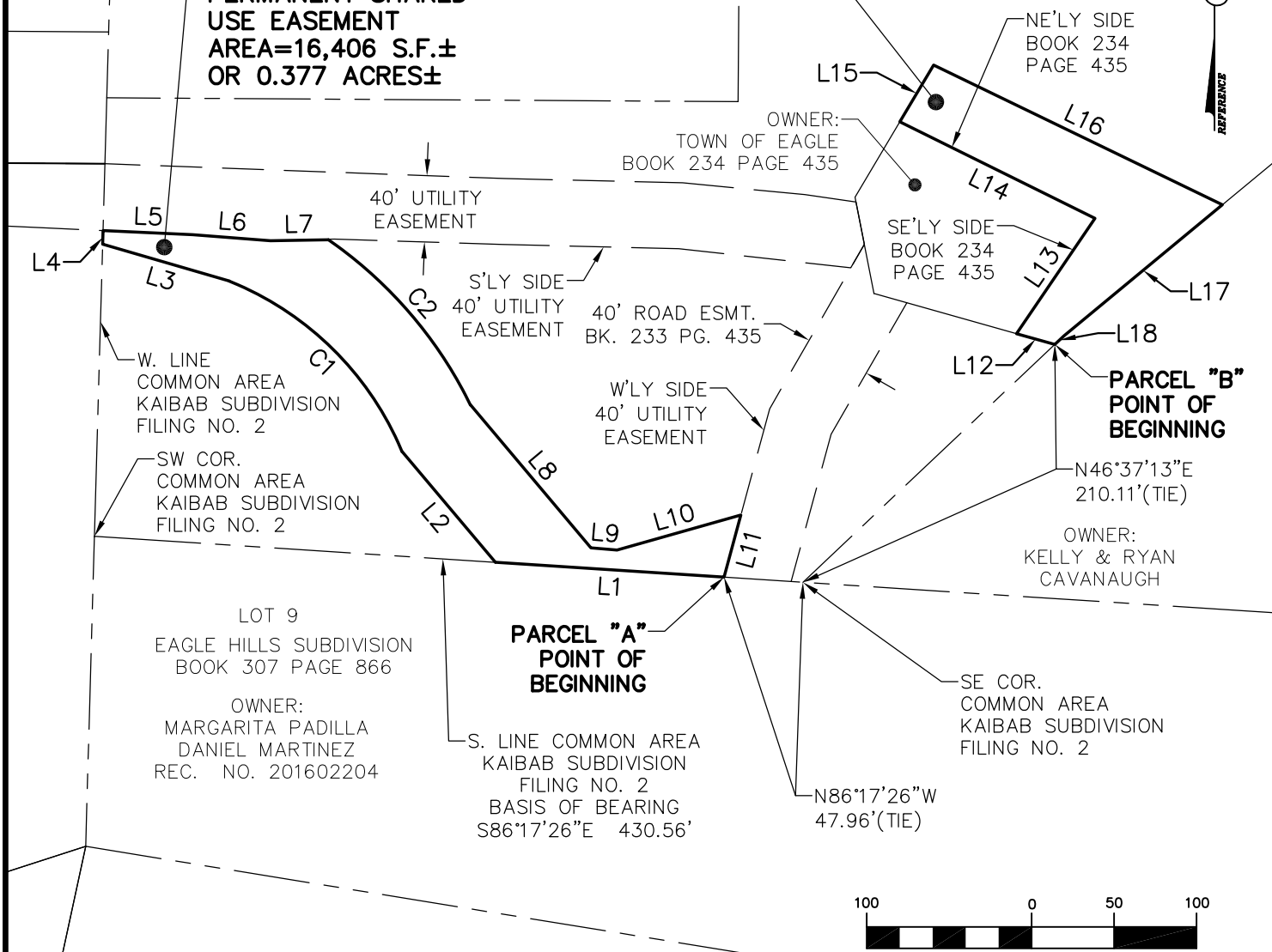
OWNER:
HOLY CROSS ELECTRIC
ASSOCIATION INC.
BOOK 177 PAGE 301

PARCEL "B"
**PERMANENT SHARED
USE EASEMENT**
AREA=10,421 S.F.±
OR 0.239 ACRES±

OWNER:
KAIBAB HOME
OWNERS ASSOCIATION

KAIBAB SUBDIVISION
FILING NO. 2
COMMON AREA
BOOK 224 PAGE 282

PARCEL "A"
**PERMANENT SHARED
USE EASEMENT**
AREA=16,406 S.F.±
OR 0.377 ACRES±



- 1.) PARCEL OWNERSHIP IS BASED ON THE RECORDS OF THE COUNTY ASSESSOR.
- 2.) ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS AFTER THE DATE OF THE CERTIFICATION SHOWN HEREON.
- 3.) THE ONLY PURPOSE OF THIS EXHIBIT IS TO SHOW THE LOCATION OF THE EASEMENT(S).
- 4.) THIS DOCUMENT SHALL BE CONSIDERED NULL AND VOID IF IT DOES NOT BEAR THE ORIGINAL SIGNATURE AND SEAL OF THE PROFESSIONAL LAND SURVEYOR OR IF ALTERED IN ANY WAY.



9025 E. KENYON AVENUE, SUITE 150
DENVER, COLORADO 80237
TEL: 303-753-9799

DRN. BY: A.S.

CHKD. BY: R.M.

DATE: 12/08/23

SCALE: 1" = 100'

FILE: R13644

SHEET: 1 OF 4

W/O #:

**PERMANENT
SHARED USE**

LINE AND CURVE TABLES

CURVE TABLE					
NO.	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	151.39'	190.92'	45°25'58"	N45°22'18"W	147.46'
C2	133.56'	262.06'	29°12'03"	S40°39'47"E	132.12'

LINE TABLE		
NO.	BEARING	DISTANCE
L1	N86°17'26"W	138.94'
L2	N40°05'27"W	87.73'
L3	N73°46'20"W	79.88'
L4	N01°37'03"E	8.27'
L5	S87°21'32"E	54.45'
L6	S85°34'32"E	47.21'
L7	N89°00'12"E	35.28'
L8	S40°04'47"E	113.41'
L9	S85°11'46"E	15.83'
L10	N74°11'25"E	78.09'
L11	S15°09'25"W	39.06'

LINE TABLE		
NO.	BEARING	DISTANCE
L12	N74°17'32"W	24.13'
L13	N34°13'54"E	84.63'
L14	N63°40'52"W	132.04'
L15	N30°43'55"E	40.09'
L16	S64°09'38"E	194.51'
L17	S50°22'58"W	124.72'
L18	S46°38'00"W	7.57'



9025 E. KENYON AVENUE, SUITE 150
DENVER, COLORADO 80237
TEL: 303-753-9799

DRN. BY: A.S.
CHKD. BY: R.M.
DATE: 12/08/23
SCALE: 1" = 100'

FILE: R13644
SHEET: 2 OF 4
W/O #:

**PERMANENT
SHARED USE**

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 4, TOWNSHIP 5 SOUTH, RANGE 84 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EAGLE, STATE OF COLORADO, ALSO BEING A PORTION OF THE COMMON AREA, KAIBAB SUBDIVISION FILING NO. 2, FILED IN THE EAGLE COUNTY CLERK AND RECORDER'S OFFICE AT BOOK 224 AND PAGE 282, SAID PARCEL OF LAND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARING OF THIS DESCRIPTION IS ALONG THE SOUTH LINE OF SAID COMMON AREA, ASSUMED TO BEAR S86°17'26"E A DISTANCE OF 430.56 FEET FROM THE SOUTHWEST CORNER OF SAID COMMON AREA TO THE SOUTHEAST CORNER OF SAID COMMON AREA;

PARCEL "A"

BEGINNING AT A POINT ON SAID SOUTH LINE, SAID POINT BEARS N86°17'26"W A DISTANCE OF 47.96 FEET FROM SAID SOUTHEAST CORNER;

THENCE N86°17'26"W ALONG SAID SOUTH LINE A DISTANCE OF 138.94 FEET; THENCE N40°05'27"W A DISTANCE OF 87.73 FEET; THENCE ALONG A NON-TANGENT CURVE TO THE LEFT AN ARC LENGTH OF 151.39 FEET, HAVING A RADIUS OF 190.92 FEET, THROUGH A CENTRAL ANGLE OF 45°25'58" AND A CHORD WHICH BEARS N45°22'18"W A DISTANCE OF 147.46 FEET; THENCE N73°46'20"W A DISTANCE OF 79.88 FEET TO THE WEST LINE OF SAID COMMON AREA; THENCE N01°37'03"E ALONG SAID WEST LINE A DISTANCE OF 8.27 FEET TO THE SOUTHERLY SIDE OF A 40' UTILITY EASEMENT; THENCE ALONG SAID SOUTHERLY SIDE THE FOLLOWING THREE (3) COURSES: 1). THENCE S87°21'32"E A DISTANCE OF 54.45 FEET; 2). THENCE S85°34'32"E A DISTANCE OF 47.21 FEET; 3). THENCE N89°00'12"E A DISTANCE OF 35.28 FEET; THENCE ALONG A NON-TANGENT CURVE TO THE RIGHT AN ARC LENGTH OF 133.56 FEET, HAVING A RADIUS OF 262.06 FEET, THROUGH A CENTRAL ANGLE OF 29°12'03" AND A CHORD WHICH BEARS S40°39'47"E A DISTANCE OF 132.12 FEET; THENCE S40°04'47"E A DISTANCE OF 113.41 FEET; THENCE S85°11'46"E A DISTANCE OF 15.83 FEET; THENCE N74°11'25"E A DISTANCE OF 78.09 FEET TO THE WESTERLY SIDE OF A 40' ROAD EASEMENT DESCRIBED AT BOOK 233 AND PAGE 435, FILED IN SAID CLERK AND RECORDER'S OFFICE; THENCE S15°09'25"W ALONG SAID WESTERLY SIDE A DISTANCE OF 39.06 FEET TO THE POINT OF BEGINNING; WHENCE SAID SOUTHWEST CORNER BEARS N86°17'26"W A DISTANCE OF 382.59 FEET.

SAID PARCEL CONTAINS 16,406 SQUARE FEET OR 0.377 ACRES, MORE OR LESS.

PARCEL "B"

BEGINNING AT A POINT THAT BEARS N46°37'13"E A DISTANCE OF 210.11 FEET FROM SAID SOUTHEAST CORNER;

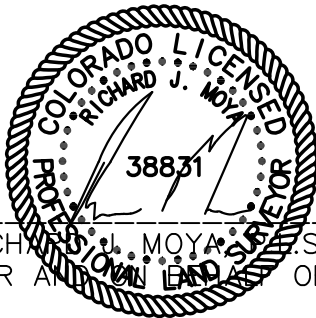
THENCE N74°17'32"W A DISTANCE OF 24.13 FEET TO THE SOUTHEASTERLY SIDE OF A PARCEL OF LAND DESCRIBED AT BOOK 234 AND PAGE 435 THENCE N34°13'54"E ALONG SAID SOUTHEASTERLY SIDE A DISTANCE OF 84.63 FEET TO THE NORTHEASTERLY SIDE OF

LEGAL DESCRIPTION

SAID LANDS DESCRIBED AT BOOK 234 AND PAGE 435; THENCE N63°40'52"W ALONG SAID NORTHEASTERLY SIDE A DISTANCE OF 132.04 FEET; THENCE N30°43'55"E A DISTANCE OF 40.09 FEET; THENCE S64°09'38"E A DISTANCE OF 194.51 FEET; THENCE S50°22'58"W A DISTANCE OF 124.72 FEET; THENCE S46°38'00"W A DISTANCE OF 7.57 FEET TO THE POINT OF BEGINNING; WHENCE SAID SOUTHWEST CORNER BEARS S78°41'29"W A DISTANCE OF 593.90 FEET.

SAID PARCEL CONTAINS 10,421 SQUARE FEET OR 0.239 ACRES, MORE OR LESS.

I, THE UNDERSIGNED, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THIS EXHIBIT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.



RICHARD J. MOYA, P.L.S. 38831
FOR AND ON BEHALF OF PRECISION SURVEY & MAPPING, INC.

12/08/23

DATE

TOWN OF EAGLE, COLORADO
RESOLUTION NO. 64
(Series of 2024)

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF EAGLE, COLORADO
APPROVING A UTILITY EASEMENT AGREEMENT WITH MARGARITA PADILLA AND
DANIEL MARTINEZ

WHEREAS, Margarita Padilla and Daniel Martinez own the real property more particularly
described in Exhibit A of the Utility Easement Agreement, attached hereto; and

WHEREAS, the Town desires to acquire an easement on such property.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF EAGLE,
COLORADO AS FOLLOWS:

Section 1. The Utility Easement Agreement is hereby approved in substantially the
form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the
Mayor is authorized to execute the Agreement on behalf of the Town.

INTRODUCED, READ, PASSED AND ADOPTED ON _____, 2024.

TOWN OF EAGLE, COLORADO

Scott Turnipseed, Mayor

ATTEST:

Jenny Rakow, Town Clerk

UTILITY EASEMENT AGREEMENT

This UTILITY EASEMENT AGREEMENT (the "Agreement") is made and entered into this 10 day of September, 2024 (the "Effective Date"), by and between Margarita Padilla and Daniel Martinez, individuals with an address of 611 Green Mountain Drive, Eagle, CO 81631 (collectively, "Grantors"), and the Town of Eagle, a Colorado home rule municipality with an address of P.O. Box 609, Eagle, CO 81631 (the "Town") (each a "Party" and collectively the "Parties").

WHEREAS, Grantor owns the real property more particularly described in **Exhibit A** (the "Easement Property");

WHEREAS, the Town desires to acquire an easement to enter, reenter, occupy and use the Easement Property to construct, install, monitor, maintain, repair, replace, operate and use a water utility line, communication equipment, conduits, and related appurtenances and facilities deemed necessary, desirable or required by the Town over, across and under the Easement Property, but excluding the installation of buildings or other structures on the surface of the Easement Property (the "Easement Purposes"); and

WHEREAS, for this purpose, Grantor is willing to convey a utility easement to the Town, as further set forth herein.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained here, Grantor and the Town mutually agree as follows:

1. Grant of Easement. Grantor hereby grants to the Town, its successors and assigns, lessees, licensees, and agents, a permanent, perpetual, non-exclusive easement (the "Easement") for the Easement Purposes, together with the right of the Town and its employees, agents, contractors, representatives, successors, and assigns shall have and exercise the right of ingress and egress in, to, through, over, under, above and across the Easement Property for access for the Easement Purposes.
2. Grantor's Obligation. Grantor shall not install or permit the installation of any landscaping, fence, wall or structure (above or below ground) within the Easement Property that would interfere with the Town's facilities or rights as herein granted. The Parties agree that other utilities and facilities may be installed in the Easement Property so long as such utilities do not interfere with the Town's rights as herein granted, the Town's facilities or use of the Easement and Easement Property.
3. Reserved Rights. Subject to the Town's enjoyment of the Easement pursuant to this Agreement, Grantor retains all rights to use and enjoy the Easement Property in any manner so long as such use does not unreasonably interfere with the Town's rights granted herein.
4. Warranty. Grantor warrants that it has the full right and legal authority to make the grant of Easement contained in this Agreement.

5. Recordation. Except as otherwise expressly provided herein, all provisions of this Agreement, including the benefits, burdens and covenants, are intended to run with the land and shall be binding upon and inure to the benefit of the respective successors and assigns of the Parties. The Town shall record this Agreement in timely fashion in the official records of Eagle County and may re-record it at any time as may be required to preserve its rights in this Agreement.

6. No Merger. It is the express intent of the Parties that the doctrine of merger shall not apply to this Agreement and there will be no merger of estate between the Easement and the Easement Property.

7. Miscellaneous.

a. *Governing Law and Venue.* This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Eagle County, Colorado.

b. *Integration.* This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

c. *No Waiver.* Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

d. *Third Parties.* There are no intended third-party beneficiaries to this Agreement.

e. *Notice.* Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent prepaid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability.* If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification.* This Agreement may only be modified upon written agreement of the Parties.

h. *Governmental Immunity.* The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town, its officers, attorneys, or employees.

i. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is

j. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake, or perform any of the duties under this Agreement due to acts of God, floods, storms, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

TOWN OF EAGLE

ATTEST:

DANIEL MARTINEZ

STATE OF COLORADO)
) ss.
COUNTY OF)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this _____ day of _____, 2024, by _____ as the _____ of _____.

My commission expires:

(SEAL)

Notary Public

STATE OF COLORADO)
) ss.
COUNTY OF _____)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this _____ day of _____, 2024, by _____ as the _____ of _____.

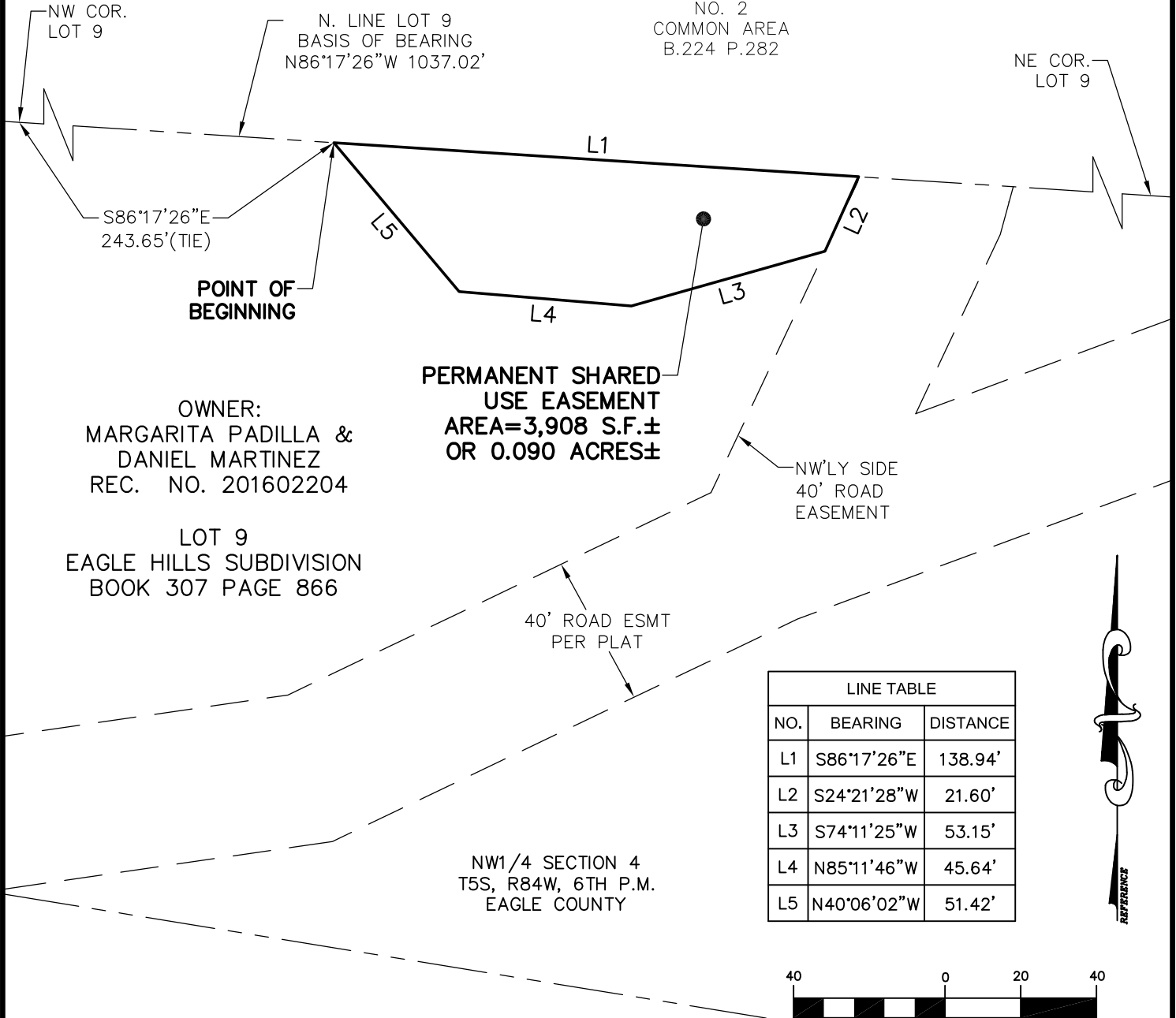
My commission expires:

(SEAL)

EXHIBIT "A"

OWNER:
KAIBAB HOME OWNERS
ASSOCIATION

KAIBAB SUBDIVISION FILING
NO. 2
COMMON AREA
B.224 P.282



- 1.) PARCEL OWNERSHIP IS BASED ON THE RECORDS OF THE COUNTY ASSESSOR.
- 2.) ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS AFTER THE DATE OF THE CERTIFICATION SHOWN HEREON.
- 3.) THE ONLY PURPOSE OF THIS EXHIBIT IS TO SHOW THE LOCATION OF THE EASEMENT(S).
- 4.) THIS DOCUMENT SHALL BE CONSIDERED NULL AND VOID IF IT DOES NOT BEAR THE ORIGINAL SIGNATURE AND SEAL OF THE PROFESSIONAL LAND SURVEYOR OR IF ALTERED IN ANY WAY.

PRECISION SURVEY & MAPPING
PROFESSIONAL LAND SURVEYING CONSULTANTS
9025 E. KENYON AVENUE, SUITE 150
DENVER, COLORADO 80237
TEL: 303-753-9799

DRN. BY: A.S.
CHKD. BY: R.M.
DATE: 12/08/23
SCALE: 1" = 40'

FILE: R13644
SHEET: 1 OF 2
W/O #: _____

**PERMANENT
SHARED USE**

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 4, TOWNSHIP 5 SOUTH, RANGE 84 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EAGLE, STATE OF COLORADO, ALSO BEING A PORTION OF LOT 9, EAGLE HILLS SUBDIVISION, FILED IN THE EAGLE COUNTY CLERK AND RECORDER'S OFFICE DESCRIBED AT BOOK 307 AND PAGE 866, SAID PARCEL OF LAND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

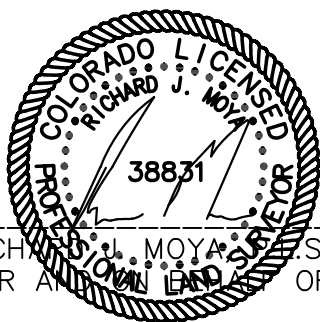
BASIS OF BEARING OF THIS DESCRIPTION IS ALONG THE NORTH LINE OF SAID LANDS, ASSUMED TO BEAR N86°17'26"W A DISTANCE OF 1037.02 FEET FROM THE NORTHEAST CORNER OF SAID LOT 9 TO THE NORTHWEST CORNER OF SAID LOT 9;

BEGINNING AT A POINT ON SAID NORTH LINE OF SAID LANDS, SAID POINT BEARS S86°17'26"E A DISTANCE OF 243.65 FEET FROM SAID NORTHWEST CORNER;

THENCE S86°17'26"E ALONG SAID NORTH LINE A DISTANCE OF 138.94 FEET TO THE NORTHWESTERLY SIDE OF A 40' ROAD EASEMENT PER PLAT; THENCE S24°21'28"W ALONG SAID NORTHWESTERLY SIDE A DISTANCE OF 21.60 FEET; THENCE S74°11'25"W A DISTANCE OF 53.15 FEET; THENCE N85°11'46"W A DISTANCE OF 45.64 FEET; THENCE N40°06'02"W A DISTANCE OF 51.42 FEET TO THE POINT OF BEGINNING; WHENCE SAID NORTHEAST CORNER BEARS S86°17'26"E A DISTANCE OF 793.37 FEET.

SAID PARCEL CONTAINS 3,908 SQUARE FEET OR 0.090 ACRES, MORE OR LESS.

I, THE UNDERSIGNED, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THIS EXHIBIT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.



RICHARD J. MOYA, P.L.S. 38831 12/08/23
FOR AND ON BEHALF OF PRECISION SURVEY & MAPPING, INC. DATE



To: Mayor and Town Council
From: Larry Pardee, Town Manager
Date: September 10, 2024
Re: Town Manager Report

Community Engagement & Meetings: This report highlights our recent community outreach efforts and critical regional and project-specific meetings. Our top priority is to engage with stakeholders, stay abreast of developments, and contribute to our Community's growth.

Monthly Town and County Managers Meeting - Town Manager Michelle Metter hosted the latest meeting in Minturn, where we discussed the State's new water and wastewater systems regulations and their potential cost implications for local communities. Other topics included the possibility of a manager serving on the CML Policy Committee to represent Western Colorado.

Sawatch Development on Chambers - We have weekly check-ins with Dave Dantas to monitor the progress of the 263 development, ensuring all required submittals are on track and each area is progressing as planned.

West Eagle Affordable Housing - Our ongoing discussions with Tori Franks and Jeff Shroll focus on the various elements of the West Eagle development, ensuring all requirements are met, and the project timeline is adhered to for complete sufficiency and approvals.

Haymeadow Development - We hold weekly meetings and additional communications with Abrika Development, Brandon Cohen, and Michael Hood to discuss initiatives to enhance community infrastructure. Topics include extending Brush Creek Road, releasing performance guarantees, vesting property rights, and financial contributions to the Grand Avenue project.

Eagle County Housing Needs Assessment Action Plan - The project progresses smoothly, with draft materials anticipated shortly after Labor Day. Preliminary findings will be shared with Town Councils and partners in late October and early November, followed by a structured review and feedback process. A pivotal stakeholder meeting on Housing Strategies is scheduled for September 18 at Avon Town Hall. The Town of Avon has secured a \$200,000 planning grant under Prop 123 to bolster regional housing initiatives, extending these discussions into 2025. Comprehensive community survey results will be unveiled in October, with significant dates including a **November 12** Eagle County Commissioners Work Session and an **Eagle Town Council meeting at 6:00 pm**.

Economic Development:

Developments in East Eagle Subarea: The Town of Eagle, in collaboration with Economic & Planning Systems (EPS), is making significant strides in the East Eagle Subarea. Recent meetings have been pivotal in fine-tuning the Commercial Linkage Fee study, Infrastructure Financing strategies, and revenue-sharing plans. We are now preparing draft recommendations for the Town Council's review, ensuring they align perfectly with our broader objectives.

Commercial Linkage Initiative: To enhance affordable housing, the Town is considering a Commercial Linkage Fee that would directly tie commercial development to housing solutions, addressing the growing demand spurred by economic growth. Additionally, EPS is partnering with East Eagle Partners to conduct financial assessments to annex Parcels A and F, promoting balanced and sustainable development. These initiatives will be thoroughly analyzed and discussed before being presented to the Town Council.

Administration and Organization Update:

Commercial Appraisal: We've sent out seven requests for proposals for commercial appraisal services. So far, three companies have stepped up and are eager to assist with appraising Old Town Hall. We'll soon select the best fit to kick off the appraisal process.

Draft 2025 Budget Work: A big thank you to the council members for participating in the work session on the draft of Capital Improvement Projects and for your feedback. Our team works hard, collaborating across departments to review budget submissions. We aim to craft a conservative, balanced budget prioritizing essential public infrastructure, assets, and core services. We're also integrating valuable feedback from community surveys, focusing on Quality of Life and capital sales tax improvement projects.

Staffing and Recruitment Update: In 2024, we filled twenty-three previously vacant positions, demonstrating our commitment to strengthening our workforce. Six full-time positions remain open, and we're actively prioritizing these vacancies. Through strategic recruitment efforts, we're dedicated to attracting highly qualified candidates who will enhance the quality of life in our Community. Our pursuit of top talent underscores our commitment to fostering a vibrant cultural environment and ensuring continuous progress and well-being for all residents.

Brush Creek Park – Playground Refurbishment: The Town of Eagle has received an updated proposal from Playgrounds by Leathers Dream-Build-Play to refurbish the playground at Brush Creek Park. This project will be a community-driven effort, inviting residents to participate in transforming this beloved recreational area. While we aim to start construction in spring 2025, we're mindful of potential delays in equipment delivery. As the project progresses, we'll keep the Community informed and share opportunities for involvement in this exciting initiative.

WORK SESSIONS:

To help the Town Council keep track of upcoming work sessions, below is a table of topics to discuss over the next several months. Preparing in advance is helpful since it takes planning to execute a work session. Staff will keep this table in this report and make changes as needed. The topics are subject to change:

Date	Topic
August 6, Work Session	Canceled
September 3, Work Session	Capital Improvement Projects (CIP)
October 1, Work Session	MEAC – 1-hr check-in with Town Council to clarify their role OSRAC – 1-hr check-in with Council
November 5, Work Session	
December 3, Work Session	
Request for Additional Work Sessions	Topic



To: Mayor and Town Council
From: Larry Pardee, Town Manager, and Department Leads
Date: September 10, 2024
Re: Department Updates for August 2024

August 2024

ASSISTANT TOWN MANAGER - SPECIAL PROJECTS

Pool Replacement Project

- Progress at the new pools is moving along well and remains on schedule and on budget. Excavation for the building addition and both pools began and the foundation for the building addition was poured in late August.
- Decisions on slide and finishing designs are being finalized.
- Staff are working on executing a lighting plan for the dirt lot to ensure adequate and safe parking for the facility this fall and winter while the paved lots are closed. The lighting will remain in place after the pool project is complete as well.

Eagle Villas / Nogal Park

- Staff have been meeting with the Ulysses Development Group, who purchased Eagle Villas, to explore opportunities to improve and reprogram Nogal Park to better suit the needs of the residents and broader community. Together, staff and the Ulysses Development Group plan to launch a community engagement strategy to establish ideas and needs for the park and then work with a consultant to plan for park updates as early as 2025.
- Staff have updated the capital improvement plan to reflect an allocation of resources in 2025 with the intention of additional funding partners joining us in the implementation of the park renovations.

Culture Work

- Staff have been working on a revised performance plan and process. The new process is called a “development plan” and is designed to infuse the Town’s values and culture as part of the evaluation of each team member’s contributions. The process envisions more dialog between supervisors and staff with a focus on supporting a collaborative environment that encourages professional and personal growth as part of our annual goal setting.
- Staff are finalizing the draft documents. The new process will kick off in 2025, but staff will have the opportunity to see the documents and learn more about the process as we conduct our annual performance reviews this fall.

ECONOMIC DEVELOPMENT

- Staff and the DDA, with support from DCI, have successfully launched the Downtown Eagle Project Investment Program. The funding opportunity is made possible through the Rural Economic Development Initiative grant. The application window opened on September 1 and will close at 5:00 PM on September 20. Many Broadway businesses have been eagerly waiting for the chance to apply and staff are anticipating a considerable number of competitive applications. Spanish translation services are available by appointment. We invite you to [learn more here](#).
- Leveraging the [Digital Dashboard](#), EVC member Joel Wallen prepared an analysis of business insights and prevalent themes from 2022 and 2023. A succinct one-page [summary is available here](#).
- Staff hosted EPS on August 13 to conduct two East Eagle workshops. The first segment was dedicated to the Town's cost recovery strategy and commercial linkage work. Using the former Eagle River Station project as a template, EPS constructed models relative to infrastructure phasing, land use and development scenarios, and tax/financing mechanisms. For the second segment, the group was joined by Red Mountain Ranch LLLP for parcel-specific consultation. Staff and EPS are working to identify a presentation date to Town Council.
- Staff met with Colorado Department of Public Health and Environment (CDPHE) to discuss Brownfield funding and remediation programs for which properties along the Grand Avenue Corridor would qualify. Identifying, evaluating and cataloging Brownfield issues along the corridor will inform potential redevelopment plans. As described in the [Eagle Challenge Community Action Plan](#), pursuing CDPHE and/or Environmental Protection Agency (EPA) opportunities for free Phase 1 evaluations should be prioritized. The property owners of 546 Grand Avenue have volunteered to nominate their site for an environmental assessment. Staff will continue to provide updates on their progress.
- Staff attended an exploratory call with Placer.ai - an AI-powered location data and analytics platform. A subscription to their program provides detailed insights into consumer foot traffic. The data empowers users to analyze metrics such as visitation trends and make informed decisions impactful to tourism, optimizing community services, event planning, business attraction/retention and revenue forecasting. Investment in this technology was not incorporated in the draft 2025 budget. However, staff may be interested in exploring this, or similar technology as the Town's need for economic analysis evolves.

HOUSING

- The draft employee housing guidelines and lease agreement are complete and will be going to Town Legal for review. With growing interest from existing employees and the need to accommodate prospective hires, staff are eager to bring the draft documents forward, seeking Town Council approval.
- Staff and the Town Attorney are working to schedule a call to review the latest comments in the draft LERP Guidelines. The Assistant Town Manager has now assumed project lead with assistance from the Housing Specialist.
- As approved by Town Council resolution, staff have executed a Professional Services Agreement with Logan Simpson to conduct the Affordable Housing Accelerator Project (AHAP). Staff and the consultant team are underway with data compilation.
- The technical assistance project with Enterprise Community and Community Builders is temporarily on hold in the deliverables review phase. The technical assistance team notified staff that the Colorado Department of Housing has issued a stop work order related to the allocation of project budgets across the state for the fiscal year. Exact details and implications to community projects are unclear. Staff will continue to provide updates as they become available.

SUSTAINABILITY

- The solar array construction was initiated on August 5th and has moved at a rapid pace. All racking and modules have been placed. Upcoming work includes trenching to lay the remaining conduit and connecting the wiring to the onsite facilities and grid.



- The town's E-bike rebate program continued in August, with 5 additional applications received and approved. To date, only 30% of the rebate funds remain, which should cover 3-6 additional rebates. The average rebate amount is \$1,932. All recipients are informed of our e-bike regulations upon issuance of rebates, and they have been very well received.
- Staff continued to collaborate with other Eagle County communities to begin preparing for the Charging & Fueling Infrastructure Grant from the US Department of Transportation, for which the submittal date was pushed back to September 11th. TOE staff is contributing information to a regional application that will include Eagle, Pitkin, and Garfield Counties. The Northwest Colorado Council of Governments is coordinating this grant application. Each county can submit up to 5 locations to add EV charging infrastructure; 3 of the 5 identified locations are in Eagle.
- The Regional Net Zero Roadmap continues to progress, with Lotus Sustainability & Engineering working to add equity considerations to the existing plan. Next steps include several Listen & Learn sessions, during which the project team seeks feedback from the building community in an effort to bake their recommendations and feedback into the plan. Once that information is gleaned, the project team will work with the Town to schedule a council presentation to inform council's decision on roadmap adoption.
- The Showdown Town concert series concluded on August 15th, which also marked the conclusion of the compost pail giveaways. Staff, community sustainability champions, and one of our council members worked together to promote curbside composting via compost trivia and compost pail giveaways at each concert. This effort was well-received by the community and was an effective educational tool. Staff looks forward to incorporating compost pail giveaways in future events.
- Staff worked to plan a bilingual energy resource night with the Palmer Fund and Walking Mountains' Energy team. Currently, this is scheduled for October, and we hope to host it at Gardunos. The goal of the resource night is to sign up income-qualified community members for energy rebates and for the 2025 Reenergize Program.
- The Sustainability Shoutout Program has kicked off, and the TOE Green Team received 2 entries last month: Carla Cornejo and Eddie Wilson. Both employees were nominated by their peers for engaging in sustainability-based behaviors at work. They will both receive prizes and a highlight in Eagle Spirit.

- Next steps for the Green Team include improving waste diversion at our facilities and establishing bike rack infrastructure to promote sustainable commuting to work.

COMMUNICATION & MARKETING

- **Safe Streets for All (SS4A) Study**

The program has officially launched. Information has been shared with the Vail Daily. The next steps include distributing fliers and door hangers with a social media push. Other public engagement efforts to communicate the plan include:

- Biztoberfest on Sept. 5 at Town of Eagle Table (Jamie)
 - Pop-up at Yeti's Grind Coffee on Sept. 13 (SS4A staff, town staff)
 - Eagle SS4A Open House on Sept. 12 (SS4A staff, town staff)
 - Eagle Farmers' Market on Sept. 14 (SS4A staff, town staff)
- Attended the Colorado Municipal League's Effective Governance workshop in Glenwood. Refresher on media response, effective governance, budgeting, risk management, open meetings standards and civility information.
- Joined the ICLEI Climate & Sustainability Communications Cohort, led by Yale University. Sharing best practices for how to communicate sustainability initiatives and encourage community engagement.
- **News Shared in August**
 - [Community Input Sought for Development of Roadway Safety Action Plan](#)
 - [Construction Underway for Eagle's New Solar Array](#)
 - [Brush Creek Interpretive Signage](#)
 - [2025 Budget Review and Approval Calendar](#)
 - [Special Event Funding and Community Grant Requests](#)
 - [Downtown Eagle Investment Program](#)
 - [Eagle's Roadway Safety Action Plan](#)

SPECIAL EVENTS

August 2024

Marketing & Events Advisory Committee (MEAC)

- 2025 Event Funding and Community Grant application process is open until September 23.
- Work Session rescheduled for October 1, 2024

TOWN EVENTS - August

- Tube-A-Palooza at Eagle River Park – Unexpectedly huge turnout. Estimated over 300 people. This was a free community event. Sage Outdoor Adventures loaned river tubes at no cost. Staff received an overwhelming amount of appreciation from participants.
- Community Table – I can't believe it didn't rain! An incredibly successful event, given the adverse weather conditions. Over 500 people turned out to connect with their neighbors. Table decorations were amazingly creative, it was tough to decide the winners. Thank you, Eagle Ranch Association, for providing complimentary Kona ice and thank you, Slifer, Smith, and Frampton for sponsoring the band, The Platonics.

MEETINGS

- National Night Out – Hats off Eagle PD! HAATS was a spectacular addition.
- 15th Annual Eagle Mushroom and Wild Food Festival – In the week leading up to the event, staff discovered the festival did not submit a liquor license application. Given the timing, staff made a recommendation to the Town Manager to temporarily designate the venue to allow alcohol consumption. Staff and the Town Manager were able to help solidify a successful event.
- Down Valley Vibes Festival – This new event shed light on opportunities to improve the town's event planning and permitting process. Town was faced with numerous challenges across multiple departments. Each department worked with their production team to accommodate changes up to the last minute. Staff have since debriefed and discussed opportunities to provide better, more concise communication.
- Collaborating with Michelle Morgan to ensure the Chamber has a successful Biztoberfest. Thank you, Public Works for your additional help.
- Looking forward to welcoming the Colorado Highschool Cycling League September 6-8 and September 20-22.

UPCOMING EVENTS

SEPTEMBER	
9/5/24	Biztoberfest
9/6-9/8	Race #2 Haymaker Classic
9/7/24	Eagle Farmers Market
9/14/24	Eagle Farmers Market
9/20-9/22	Race #3 Haymaker Classic
9/21/24	Eagle Farmers Market
9/21/24	Vail Valley Walk to End Alzheimer's
9/28/24	Eagle Farmers Market





August 2024 Analytics Report

Eagle Spirit | August 2024

Successful deliveries 1 100.0% Clicks per unique opens 100.0%

Total opens 182 Total clicks 39

Last opened 8/30/24 5:22PM Last clicked 8/17/24 10:07PM

Eagle Today | August 2024

2,964 Recipients

Audience: Eagle Today

Delivered: Fri, August 2 2024 9:37 AM

Subject: Eagle Today

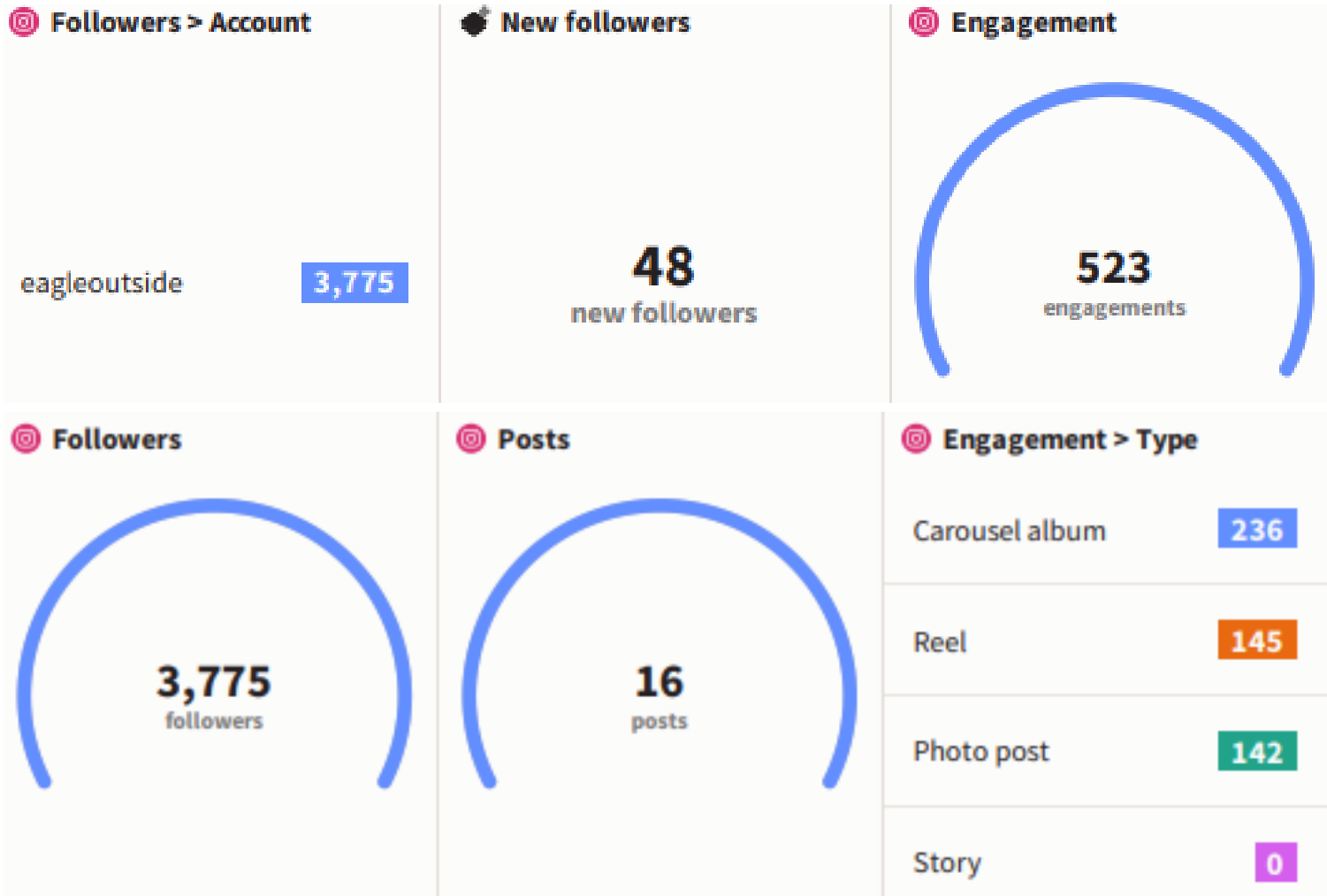
1,605 Opened	382 Clicked	13 Bounced	2 Unsubscribed
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Successful deliveries 2,951 99.6% Clicks per unique opens 23.8%

Total opens 2,655 Total clicks 891

Last opened 9/2/24 12:51PM Last clicked 8/31/24 8:05AM

Eagle Outside Instagram: August 2024



Posts Table				LIKES	COMMENTS	REACH
DATE	MESSAGE					
eagleoutside Aug 31, 14:15	Stop by and say hello to all our wonderful vendors from 9 a.m.-1:30 p.m. today (Saturday) during the @eaglefarmersmarket.			35	0	654
eagleoutside Aug 28, 23:24	Thanks for being a part of Eagle's Community Table. It was wonderful to connect with family, friends & neighbors #loveourlocals Special thanks to our sponsors @slifervailvalley @k2vailvalleyrealestate for bringing the tunes. The Platonics rocked 🎸 Eagle Ranch Association provided #konaice for all 💖 SO hard deciding this year's winners for Most Creative 🏆 and Most Spirited 🏆 Shoutout to @bexwhitephotography for capturing the creativity! #communitytable #townofeagle #eaglecolorado #lovewhereyoulive #getoutside #eagleoutside #rainsisagoodthing			110	3	982
eagleoutside Aug 25, 13:25	Town of Eagle's Community Table TODAY #rainorshine ☀️ 4pm Check-in 5pm Dinner Bell 6pm Prizes for most creative & most spirited 🏆 Come prepared, weather forecast calls for rain ☔ #rainsisagoodthing #communitytable #eaglecolorado #lovewhereyoulive			36	0	786
eagleoutside Aug 21, 23:00	Happening this week in Eagle: Connect with your family, friends and neighbors #community 🎸 Down Valley Vibes Festival: Friday, August 23rd & Saturday, August 24th. Check out @2ndstreeteagle 🌊 Sustainable Splash at the Eagle River Park Saturday, August 24th @mountainyoutheaglecounty 🍷 Eagle Farmers Market: Saturday, August 24th 🧘 Yoga by the River: Sunday, August 25th with @the.vitality.collective 🍷 Town of Eagle's Community Table: Sunday, August 25th #eagleoutside			32	1	800
eagleoutside Aug 20, 18:13	(No description)			0	0	96
eagleoutside Aug 20, 18:13	(No description)			0	0	100
eagleoutside Aug 20, 18:13	(No description)			0	0	124
eagleoutside Aug 16, 18:02	Yoga in the Park Eagle Town Park Sunday, August 18 9 AM This is the last one of the season. Yoga by the River will wrap up next Sunday, August 25 at the Eagle River Park. Thank you @yogaoffbroadway and @the.vitality.collective 🧘			21	2	509
eagleoutside Aug 16, 03:15	(No description)			0	0	192
eagleoutside Aug 16, 03:14	(No description)			0	0	205
eagleoutside Aug 14, 12:01	The last #showdowntown of the summer 🍷 Join us tomorrow for an unforgettable night of country music by @winchesterrdband 🎸 Thank you @vfvfoundation and Alpine Bank for a spectacular summer concert series 🍷 #summerconcertseries #livemusic #lovelivemusic #summer #summervibes #backtoschoolvibes #eaglecolorado #getoutside #eagleoutside			45	1	522

eagleoutside Aug 08, 20:35		The @vfvfoundation is bringing @jeremyfacknitz to the stage at the Showdown Town tonight. Jeremy Facknitz has been entertaining audiences with his lovingly crafted music and high-energy performances for over a quarter century. Since the 2002 break-up of his Detroit-based band "The Ottomans" (they earned a 2001 Detroit Music Award for Best New Alternative Band, beating out "The White Stripes"), Jeremy has performed primarily as a solo act, marrying folk-rock and jazz stylings to showcase his intimate stories of life, love, and self-discovery. This FREE outdoor concert series tak...	4	0	284
eagleoutside Aug 06, 00:02		Happening this week in Eagle 🇺🇸 National Night Out is Tuesday, August 6 at 5pm at Brush Creek Pavilion. Eagle PD will be grilling up free hotdogs 🌭🍔 Youthapalooza hosted by @mountainyoutheaglecounty is Wednesday, August 7 at 5pm at Eagle Town Park 🇺🇸 Showdown Town featuring music by @jeremyfacknitz heats up Thursday, August 8 at 6:30pm at Eagle Town Park 🇺🇸 @eaglemushroomfest returns Friday, August 9 with musical guests @therunawaygrooms at Brush Creek Park starting at 7:30pm - free & open to the public. 🍄 @eaglefarmersmarket continues...	24	1	529
eagleoutside Aug 05, 01:37		That. Was. Awesome. Thanks everyone for coming out! @sageoutdoors with the win, we appreciate you! The Platonics rocked the casbah 🇺🇸 #tubeapalooza #eagleriverpark #eagleriver #eaglecolorado #getoutside #eagleoutside #lettrain	117	6	1,253
eagleoutside Aug 04, 14:01		Today is the day! Tube-A-Palooza 1pm-4pm at the Eagle River Park! @sageoutdoors will be lending out river tubes. Bring your sunscreen and life vest. See you there! #eagleriver	48	2	915
eagleoutside Aug 02, 00:03		(No description)	0	0	194

Town of Eagle Facebook: August 2024

 Page fans 3,426 fans	 New followers 27 new followers	 Page reach 23,539 users	 Page impressions 31,325 impressions
 Posts 28 posts	 Post photo views 1,234 clicks	 Post clicks 2,829 clicks	 Post link clicks 109 clicks
 Post reach 25,363 users	 Post shares 54 shares		

Posts table				
DATE ▼	MESSAGE	REACTIONS	COMMENTS	SHARES
Town of Eagle, CO Aug 31, 14:15	 Stop by and say hello to all our wonderful vendors from 9 a.m.-1:30 p.m. today (Saturday) during the Eagle Farmers' Market & Art Show. Learn more: https://www.eaglefarmersmarketandartshow.com/ .	13	0	1
Town of Eagle, CO Aug 30, 22:35	 In observance of Labor Day, most Town of Eagle municipal offices will be closed on Monday, Sept. 2. Regular hours will resume on Tuesday, Sept. 3. The front counter of the Eagle Police Department at Eagle Town Hall will also be closed. For emergencies, call 911. For non-emergencies, contact Dispatch (Vail Public Safety Communications) at 970-479-2201 to speak with an officer. Public works will be on call for emergencies. Call 970-328-6678. For all other town information, visit townofeagle.org .	4	0	0
Town of Eagle, CO Aug 30, 18:45	 We just spotted this fella or gal walking along Howard St. in Eagle. As a reminder, during late summer and early fall bears need 20,000 calories a day to gain enough weight to survive the winter without eating or drinking. Here are a few tips from Colorado Parks and Wildlife to help keep bears wild. ■ Don't feed bears, and don't put out food for other wildlife that attracts bears. ■ Be responsible about trash and bird feeders. ■ Burn food off barbecue grills and clean after each use. ■ Keep all bear-accessible windows and doors closed and locked, including home, garage and vehicle doors. ■ Don't...	70	22	24
Town of Eagle, CO Aug 28, 23:00	 Love our locals! Thanks for being a part of Eagle's Community Table. It was a great time to connect with family, friends, and neighbors. Thank you for your creativity. Photo: Under the Sea @bexwhitephotography	4	0	0
Town of Eagle, CO Aug 28, 13:22	 (Post with no description)	2	1	4
Town of Eagle, CO Aug 26, 20:02	 Eagle Town Council Meeting: 6 p.m. Tuesday, Aug. 27 at Eagle Town Hall, 200 Broadway To view the council packet, visit:	1	0	0
Town of Eagle, CO Aug 23, 14:21	 Check out these back-to-school safety tips from the Eagle Police Department.	6	0	0
Town of Eagle, CO Aug 22, 20:18	 🚧 Construction Update/Road Closures 🚧 ■ 2nd Street Closure: Aug. 22-25 2nd Street between Highway 6 and Broadway will be closed for the Down Valley Vibes Fest. Follow detour signage. ■ Capitol Street Closure: Aug. 25-26 Capitol Street will be closed in Eagle Ranch for the town's Community Table event. Follow detour signage. ■ Recreation Path Closure: Aug. 28-Sept. 10 The recreation path from Nogel Rd. to Chambers Ave. and a section just past Nogle Rd. going east will be closed for maintenance. Follow detour signage. ■ Howard Street/4th Street Utility Project 4th St. ...	8	0	1
Town of Eagle, CO Aug 21, 23:00	 Happening this week in Eagle: Connect with your family, friends and neighbors. 🇺🇸 Down Valley Vibes Festival: Friday, August 23rd and Saturday, August 24th. Check out @2ndstreeteagle 🇺🇸 Sustainable Splash at the Eagle River Park Saturday, August 24th, join @mountainyoutheaglecounty 🇺🇸 Eagle Farmers Market: Saturday, August 24th 🇺🇸 Yoga by the River: Sunday, August 25th with @the.vitality.collective 🇺🇸 Town of Eagle's Community Table: Sunday, August 25th	10	0	2

Town of Eagle, CO Aug 20, 14:23	This is a wonderful project for our community and we're proud to have been a partner in helping 16 families purchase homes in Eagle.	7	0	0
Town of Eagle, CO Aug 16, 18:02	Yoga in the Park Eagle Town Park Sunday, August 18 9 AM This is the last one of the season. Yoga by the River will wrap up next Sunday, August 25 at the Eagle River Park. Thank you @yogaoffbroadway and @the.vitality.collective 🧘‍♀️	9	3	1
Town of Eagle, CO Aug 16, 13:36	Contact Eagle Police Department if you have any information.	3	0	4
Town of Eagle, CO Aug 15, 21:33	Join Habitat Vail Valley and celebrate welcoming 16 families to Adam's Way Road in Eagle.	2	0	0
Town of Eagle, CO Aug 14, 14:03	Join us tomorrow, Thursday, August 15 for an unforgettable night of country music by Winchester Road. It is the last showdown town of the summer. Thank you Vail Valley Foundation and Alpine Bank for a spectacular concert series 🎶	33	0	5
Town of Eagle, CO Aug 13, 20:49	Construction has begun on our new 749-kilowatt solar array at the Wastewater Treatment and Lower Basin Water Treatment Facilities. This project is set to offset over 1.28 million pounds of carbon emissions annually—equivalent to taking 112 cars off the road or powering 56 homes with clean energy. The \$3 million project, supported by a \$750,000 grant from the Colorado Department of Local Affairs Clean Energy Fund, is scheduled for completion in October. This is just one of many steps advancing to achieve our goal of net zero carbon emissions by 2028. Learn more at: https://townofeagle...	11	0	0
Town of Eagle, CO Aug 12, 19:08	Eagle Town Council meeting at 6 p.m. Tuesday, Aug. 13 at Town Hall, 200 Broadway. For a full agenda, visit:	1	0	0
Town of Eagle, CO Aug 08, 15:59	Come chill out with the Eagle Police Department at 5 p.m. on Monday, Aug. 12.	4	0	0
Town of Eagle, CO Aug 07, 23:08	Hey middle and high schoolers! Check out Mountain Youth's Youthapalooza at Eagle Town Park tonight until 8pm	8	0	2
Town of Eagle, CO Aug 07, 16:19	Eagle Valley Wildland's last call for chipping is Aug. 11. Get your piles ready to go.	4	0	0
Town of Eagle, CO Aug 06, 23:45	Join Eagle Police Department for National Night Out at Brush Creek Pavilion. Happening until 8pm today (Aug. 6). Food and fun! Thank you to our emergency service providers.	0	0	0
Town of Eagle, CO Aug 06, 23:42	(Post with no description)	22	0	0
Town of Eagle, CO Aug 05, 20:10	Mountain Recreation and the town have secured funding for not one, but two water slides!!! Check out this post from Mountain Recreation to see where we're at and next steps.	50	20	2
Town of Eagle, CO Aug 05, 14:03	The Eagle Police Department is hosting National Night Out (NNO) on Tuesday, August 6th, 5 p.m. - 8 p.m. at Brush Creek Pavilion. Join us for free hotdogs, games, and giveaways.	10	0	4
Town of Eagle, CO Aug 04, 14:01	Today is the day! Tube-A-Palooza 1pm-4pm at the Eagle River Park! @sageoutdoors will be lending out river tubes. Bring your sunscreen and life vest. See you out there! #eagleriver	24	0	2
Town of Eagle, CO Aug 02, 22:01	Gather alongside fellow mycophiles and mushroom-enthusiasts at the 15th Eagle Mushroom & Wild Food Festival August 9 - 11. For more information visit eaglemushroomfest.org 🍄	4	0	0
Town of Eagle, CO Aug 02, 21:39	FYI. Without any relief from the hot, dry conditions we're looking at moving into Stage 1 fire restrictions within the week.	4	2	1

Eagle Outside Facebook: August 2024

Page new followers	Post likes	Page followers	Page impressions
5 new followers	11 likes	9,378 followers	1,742 impressions
Page new followers	Post likes	Page followers	Page impressions
5 new followers	11 likes	9,378 followers	1,742 impressions

Post clicks

34
clicks

Post organic reach

976
users

Page post impressions

1,381
impressions

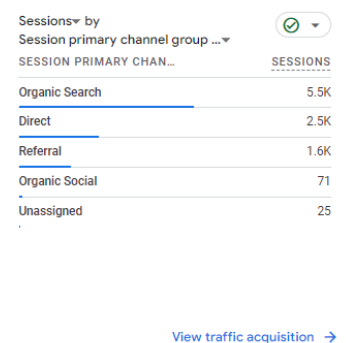
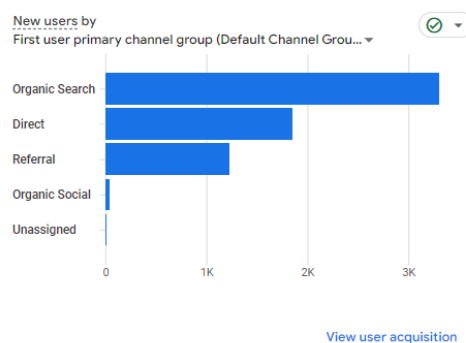
Posts table

DATE ▼	MESSAGE	REACTIONS	COMMENTS	SHARES
Eagle Outside Aug 31, 14:15	 Stop by and say hello to all our wonderful vendors from 9 a.m.-1:30 p.m. today (Saturday) during the Eagle Farmers' Market & Art Show. Learn more: https://www.eaglefarmersmarketandartshow.com/ .	6	0	0
Eagle Outside Aug 08, 16:06	Don't miss tonight's Showdown Town!	1	1	0
Eagle Outside Aug 07, 23:17	 Mountain Youth's Youthapalooza is happening until 8pm tonight!	1	0	0
Eagle Outside Aug 05, 21:52	 Gather alongside fellow mycophiles and mushroom enthusiasts as the 15th Eagle Mushroom and Wild Food Festival to Eagle this weekend, Aug. 9-10. Foraging, dinners and a free concert featuring The Runaway Grooms. Visit https://eaglemushroomfest.org/ for details. Please note: The sale, use and distribution of psilocybin mushrooms, also known as magic mushrooms, i...	4	0	0

Analytics

All accounts > Town of Eagle

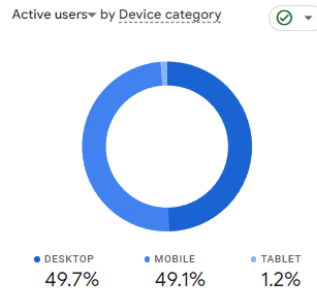
Town of Eagle website



WHICH PAGES AND SCREENS GET THE MOST VIEWS?

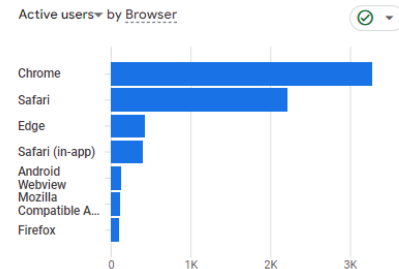
Views by Page title and screen class

PAGE TITLE AND SCREEN CLASS	VIEWS
Town of Eagle, CO - Official Website ...	3.3K
Jobs • Eagle • CivicEngage	813
Agendas, Minutes and Packets To...	489
Search • Eagle • CivicEngage	486
Staff Directory • Eagle • CivicEngage	442
Police Town of Eagle, CO - Official ...	317
Forms, Permits, Fees & Applications...	306



Active users by City

CITY	ACTIVE USERS
Eagle	1.1K
Denver	751
Clifton	279
Englewood	267
Santa Clara	256
Ashburn	254
Gypsum	180



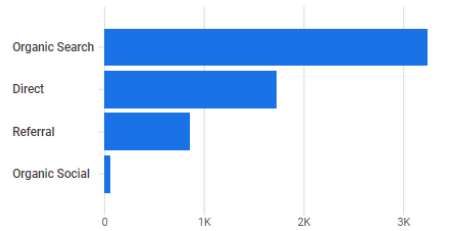
Active users ⓘ 6.2K

New users ⓘ 5.9K

Average engagement time per active user ⓘ 44s



New users by First user primary channel group (Default Channel Group)▼



[View user acquisition →](#)

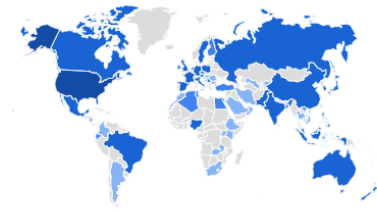
Sessions▼ by Session primary channel group (Default Channel Group)▼

SESSION PRIMARY CHAN...	SESSIONS
Organic Search	4.9K
Direct	2.1K
Referral	1K
Organic Social	77
Unassigned	33

[View traffic acquisition →](#)

WHICH PAGES AND SCREENS GET THE MOST VIEWS?

Active users▼ by Country



COUNTRY	ACTIVE USERS
United States	6K
Canada	17
Germany	12
Ireland	12
United Kingdom	10
India	9
Australia	8

Views by Page title and screen class

PAGE TITLE AND SCREEN CLASS	VIEWS
Event Calendar for Eagle, Colorado ...	1.4K
Official Eagle Colorado Adventure G...	1.4K
ShowDown Town Concert Series - E...	704
Eagle River Fishing Colorado Acc...	508
Hike in Eagle Colorado Complete H...	406
Community Table - EagleOutside	358
Town of Eagle River Park Project	307

Active users▼ by City

CITY	ACTIVE USERS
Denver	984
Eagle	455
Englewood	380
Santa Clara	278
Clifton	265
Phoenix	186
Gypsum	161

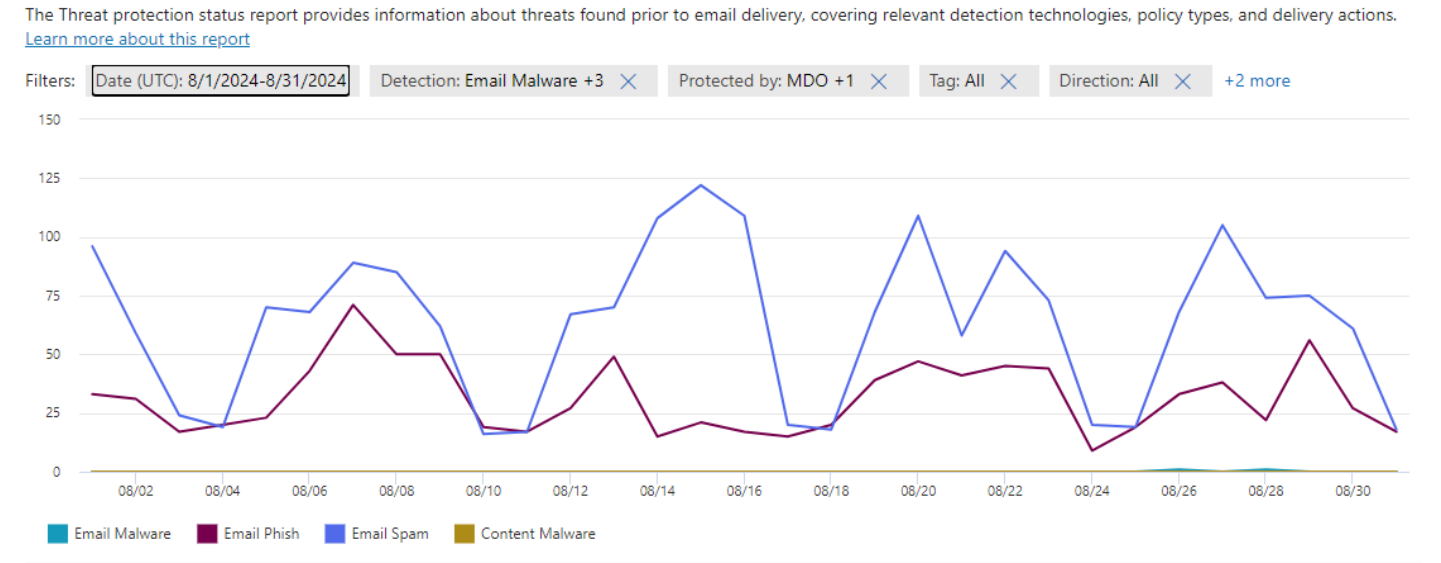
Broadband update:

- New installations on hold until funding becomes available or as hardware becomes available from churn.

Technical Operations:

- Email threat protection report:

Threat protection status



- Support ticket report:

FINANCE DEPARTMENT

August 2024

Administration/Financial:

- **Budget:**
 - **2025 Budget Calendar:**
 - July 1st – Budget Kickoff Meeting
 - July 8 – 19th – Departmental IT Meetings
 - July 12th – B&G Maintenance Request Forms due to Public Works & Finance
 - July 19th – Personnel Requests and reallocations due to finance
 - July 19th – Compensation Plan due to finance
 - July 31st – Capital Improvements Plan with project descriptions due to finance
 - July 31st – Operating budgets due to Finance
 - July 31st – Departmental Workplans due to Finance
 - August 16th – Revenue Projections and Fixed Costs due
 - August 16th – Capital Improvement Plan Staff meeting
 - August 20-24 – Operating budget review meetings with Staff
 - **September 3rd – Budget Work Session 2025 – 2029 Capital Improvements Plan**
 - September 6th – Fee Schedule Revisions due to Finance
 - **September 23rd – Operating Budget (Meeting or Work Session prior to meeting depending on Council Agenda)**
 - **October 8th – Public Hearing: 2025 Budget Presentation**
 - **October 22nd – Public Hearing: 2025 Budget Presentation**
 - October 25th – Operating Narratives due to Finance
 - **November 12th – Public Hearing: Adoption of the 2025 Budget**
 - **December 10th – Certification of the 2025 Mill Levy**
 - January 31st – Deadline for Certified copy of the adopted budget filed with the State
- **Short Term Rentals (STRs):**
 - STR Active Permits – 22
 - STR Active Permits newly Registered but not yet renting (2 – included in 21 count)
 - STR Closed Permits – 0
 - STR Permits in process – 2 accounts (newly identified - sent out initial outreach letters)
 - Revenue Collection:
 - July 2024: \$3,098- (17%) decrease compared to 2023 YTD collections of \$3,727
 - Jan-July 2024: \$12,780 – (30%) decrease compared to 2023 YTD collections of \$18,348
 - Decrease in Active Rentals: One significant factor behind this decline is the reduction in active rentals. In July 2023, out of our 22 registered properties, 18 were actively renting. However, in July 2024, despite still having 22 registered STRs, only 15 properties were actively renting. This reduction directly affects our short-term rental (STR) revenue.
- **Employee Housing Guidelines and Lease Contract Review:** Finance met with staff to review the draft Employee Housing Guidelines and Lease Agreement, focusing on finalizing rental rates, lease terms, roommate selection criteria, and the timeline for placing employees in housing. We also discussed solutions to ensure the program remains easy to manage administratively.
- **Audits:**
 - **Annual Audit:** The annual audit is ongoing, and we are currently waiting to hear back from our auditor. They said they would be in touch with us after September 15th. We will keep you updated on any further

developments and the new timeline for the audit's completion. Thank you for your understanding and continued support.

- **Unemployment Insurance Audit – 2023** – Finance has provided everything to the State for our unemployment insurance audit. We are now just waiting for any potential follow-up. We are hoping this audit is wrapped up by the end of September.
- **Grants:**
 - **REDI Grant (\$80,000 over two years)** – Finance met this month with our Economic Development and Housing Specialist before separately meeting with DOLA regarding our Downtown Eagle Project Investment Program, which we are facilitating through the DDA.
 - **CO Energy Office-E-Bike Grant (\$35,000):** We have been processing e-bike rebate applications and have prepared and submitted reimbursement requests for payments issued in May, June, July, and August. Monthly reimbursement requests and reporting are required. To date, we have submitted reimbursement requests totaling \$18,946.
 - **SMART Policing Grant (\$246,442 for two years):** Finance has been assisting Public Safety with quarterly reimbursement submissions. Thus far, we have requested \$46,931. We are currently working with the Granting Agency to secure an extension due to delays in placing our police academy recruits as initially planned.
 - **DOLA SLFRF- 3rd Street Housing Project (\$1,100,000 – Pass-through Grant):** We are in the final stages of closing out the Habitat for Humanity grant. We have one final reimbursement request pending. To date, we have collected and dispersed \$1,005,787.
- **GASB 97 Implementation Update:** We are continuing our work with DebtBook to implement GASB 96, which aims to enhance transparency in accounting for subscription-based IT arrangements (SBITAs). DebtBook is assisting in reviewing SBITAs, preparing journal entries, and providing the required financial statement disclosures. The Finance team has completed the review of general ledger items, identified all SBITAs, and gathered necessary invoices and contracts to support DebtBook's implementation.
- **Pool Rebuild Project Debt Issuance Update:** Finance has continued work on the debt issuance for the pool rebuild project. Finance has had several meetings with the financing team (Bond Council/Disclosure Council/Underwriters) to review our Preliminary Official Statement (POS) and planning, as well as to finalize Certificates of Participation (COPs) financing documentation. We have put a hold on our ratings meeting until we receive draft financials from our auditor to provide to Moody's. We have also met with the Eagle Pool executive team to discuss financing specifics.
 - Although Finance has been billing Mountain Rec quarterly for their portion of the pool project, our Financing team has recommended that we receive the full amount of Mountain Rec's match in advance of the COP issuance. Mountain Rec has agreed to this arrangement. We will invoice Mountain Rec for the full amount, and the funds will be maintained in a separate COLOTRUST account. Any interest earned in this account will be allocated toward the pool project.

Payroll/HR:

- **Position changes in payroll**
 - 2 New Hires
 - Building Inspector I
 - Water & WW Distribution and Collections Trainee
 - No Terminations
- **Met with CEBT** to discuss annual renewal for health, dental, vision insurance and open enrollment:
 - If no adjustments are made to the Town's plans these are the following increases for 2025:
 - Health Insurance – 23.5% increase

- Dental Insurance – 8% increase
- Vision Insurance – No adjustment in premiums
- Finance has completed an analysis of the premium increases and presented several options to HR and the Town Manager to help mitigate the impact on both the Town and our employees. Finance, HR, and the Town Manager will collaborate to finalize recommendations on potential modifications and determine the best approach to share the cost increase between the Town and staff through adjusted premium contributions.
- **Development Plan (Performance Review)** – Finance attended a meeting with other department managers to review the newly revised Development Plan program and provide feedback to management for a successful transition and rollout to staff beginning in 2025.
- **HRIS RFP Meeting** – Finance participated in a meeting with HR and IT to provide feedback on the HRIS software RFP.

Accounts Payable:

ACCOUNTS PAYABLE: INVOICES PAID							
	2020	2021	2022	2023	2024	VARIANCE FROM PY	
JANUARY	205	230	249	285	280	(5)	-2%
FEBRUARY	237	217	254	212	278	66	31%
MARCH	234	247	243	264	390	126	48%
APRIL	137	214	331	259	300	41	16%
MAY	162	260	269	388	314	(74)	-19%
JUNE	221	400	398	290	309	19	7%
JULY	314	239	329	310	386	76	25%
AUGUST	241	243	255	312	470	158	51%
YEAR TO DATE	1,751	2,050	2,328	2,320	2,727	407	18%

- **Accounts Payable Software RFP Meetings:** Finance and IT have met with all departments to review our current A/P process and identify key functions we want in new A/P software for the RFP. We plan to issue the RFP to selected software companies within the next month.
- **Reimbursable Invoices Process Improvements:** Given recent transitions, we have reviewed and documented our current reimbursable invoices process in collaboration with multiple departments. We are developing a revised workflow and will finalize it in an SOP within the next month. Additionally, we are clarifying the definition of reimbursable expenditures to ensure all staff have a clear understanding.

Utilities:

- **August 2024:**
 - Property Transfers – 11 (YTD – 69)
 - New Account Set Up – 3 (YTD – 48)
 - Utility Red Tags – 24 (2024 monthly Average 22.6)
 - Water Shut Offs – 2 (2024 monthly Average 0.5)
- **Water Usage and Budget v. Actual:**

Water Usage (In Thousands)									
MONTH	2019	2020	2021	2022	2023	PRIOR 5 YR AVG	2024	CHANGE OVER AVERAGE	
JANUARY	18,569	17,925	16,564	16,602	15,660	17,064	15,813	(1,251)	-7%
FEBRUARY	15,554	15,981	15,538	14,503	18,016	15,918	16,630	712	4%
MARCH	14,844	15,501	16,099	16,436	13,615	15,299	14,814	(485)	-3%
APRIL	16,101	15,578	17,443	14,988	15,071	15,836	16,935	1,099	7%
MAY	20,473	34,006	23,775	24,859	17,773	24,177	18,715	(5,462)	-23%
JUNE	37,622	61,463	60,403	51,373	42,130	50,598	48,409	(2,189)	-4%
JULY	58,319	59,749	54,926	54,700	56,705	56,880	52,778	(4,102)	-7%
AUGUST	66,525	68,047	58,490	54,510	65,705	62,655	52,501	(10,154)	-16%
TOTAL YTD	248,007	288,250	263,238	247,971	244,675	258,428	236,595	(21,833)	-8%

**Town Council Department
Budget to Actual:**

TOWN OF EAGLE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 8 MONTHS ENDING AUGUST 31, 2024

GENERAL FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
TOWN COUNCIL					
10-49-110 SALARIES & WAGES	3,800.00	30,400.00	45,800.00	15,200.00	66.7
10-49-142 WORKERS COMPENSATION	.00	54.30	56.00	1.70	97.0
10-49-143 HEALTH & INSURANCE BENEFITS	.00	.00	168.00	168.00	.0
10-49-144 FICA - EMPLOYER'S	290.70	2,325.60	3,488.00	1,162.40	66.7
10-49-210 OFFICE SUPPLIES	.00	47.85	.00	(47.85)	.0
10-49-225 UNIFORMS	.00	.00	500.00	500.00	.0
10-49-320 LEGAL NOTICES	.00	.00	1,500.00	1,500.00	.0
10-49-347 PROFESSIONAL SERVICES	.00	22,447.54	23,000.00	552.46	97.6
10-49-371 TRAVEL EXPENSE	.00	400.64	5,250.00	4,849.36	7.6
10-49-372 MEETING EXPENSE	.00	7,554.76	11,750.00	4,195.24	64.3
10-49-380 TUITION & BOOKS	.00	.00	6,000.00	6,000.00	.0
10-49-450 SPECIAL COUNCIL FUNDING	.00	15,334.00	15,334.00	.00	100.0
10-49-510 INSURANCE	.00	113.89	831.00	717.11	13.7
10-49-915 COMMUNITY REQUESTS	.00	43,404.00	50,000.00	6,596.00	86.8
TOTAL TOWN COUNCIL	4,090.70	122,082.58	163,477.00	41,394.42	74.7

HUMAN RESOURCES

August 2024

Benefits:

- Onsite Biometric Wellness Screening September 5, 2024, 37 attendees, great turnout.
- Evaluating cost savings measures with Finance for Medical renewal, received 23% increase to rates for 2025
- Planning for Open Enrollment Meetings with Staff in October.

Risk Management, Safety and Work Comp:

- Managing 8 Total General Liability & PC Open claims
 - 2024 total claims = 6 (1 closed)
- Managing 3 Work Comp Claims
- Passed CIRSA Safety compliance audit with flying colors 😊

Recruitment:

- 23 positions filled in 2024
- Actively recruiting for 4 open positions:
 - **Planner I, II/Sr. Planner:** offer pending
 - **Police Officer or Police Officer Recruit:** One of two grant funded positions has been filled.
 - **Engineer I, II:** Team Interviews scheduled week of September 9.
 - **Wastewater Plant Operator:** Interviewing

Onboarding:

- Conducted Benefits, Payroll Paperwork & Handbook orientation for 2 new hires

HR Administration:

- Training HR Generalist
- Working with Finance and Consultant to evaluate Compensation Budget for 2025
- Spanish Translation – 2 hours for Administration
- HR Manager graduated from ICMA Leadership Academy, a 12-week virtual training program, 5 hours weekly
- 4 hours of online training attended for HR Certification Credits
- RFP for HRIS finalized, stakeholder meetings held, distributing to vendors week 09/06.
- Budget preparations for 2025

COMMUNITY DEVELOPMENT

August 2024

Planning

LONG RANGE PLANNING

ReCode Eagle – The Land Use and Development Code (LUDC) – [link to code](#)

- Staff is processing a 2nd amendment that resolves inconsistencies identified in Ch. 4.17 and other areas of the Land Use Code. Staff aim to bring these changes through the hearing process in September.

WUI Code

- Staff are actively engaged in the County-wide Wildland Urban Interface (WUI) Code update process, led by the Eagle County Wildfire Collaborative. This initiative involves collaboration with jurisdictions throughout the valley to create a WUI Code that caters to our local needs.
- The group held a meeting on August 8th to identify the process for incorporating WUI Code elements into Town's building codes. The next meeting is scheduled for September 12th.

LAND USE APPLICATIONS IN PROGRESS

For more information and to access project documents, visit the Town's [Active Land Use Applications Page](#).

- West Eagle Housing - Annexation, Major Development Permit, Subdivision, Zoning
 - A revised application has been submitted and is out on referral. Staff anticipate scheduling the hearing dates this fall and initiating the annexation process on August 27th.
 - Applications will be presented to the Planning Commission on September 17th and the Town Council on October 8th.
- Haymeadow - Major PUD Amendment
 - A revised application has been submitted and referral comments have been submitted to the applicant. Public Hearing dates have not yet been determined.
 - A revised application based on the last round of referral comments has been submitted to the Town, and we tentatively expect to schedule public hearings for PZ on October 1st and TC on October 22nd.
- Haymeadow ADA Amendment
 - Staff has continued to meet bi-monthly with the applicant to move towards a resolution for this amendment.
 - Abrika Properties, LLC and staff have made significant progress in negotiations since June 11th, more information on this to come.
 - Staff hopes to have a presentation for Town Council on the Sixth Amendment to the ADA on the September 10th meeting.
- North Broadway – Annexation and Zoning
 - Applicant has withdrawn their request for PUD zoning following annexation, and has submitted a request for CMU2 zoning for the entire property. The annexation/rezone application is out on referral review.
- Reserve at Hockett Gulch – PUD Amendment and Major Development Permit (Phase 1b and II)
 - Request will run concurrently with PUDA24-01.
- 7 Hermits Condominiums at Haymeadow (Bldg. C)
 - The application was submitted on August 5th.

- Referral comments have been submitted to the applicant and they are working on incorporating comments into the final plat.
 - Staff has scheduled this plat on Town Council's September 10th consent agenda.
- 7 Hermits Condominiums at Haymeadow (Bldg. E)
 - This application was submitted on August 26th and is currently out on referral.
 - Staff tentatively plans to schedule this plat for Town Council's September 24th consent agenda.
- Sweet Leaf Pioneer Special Use Permit
 - Application to be re-presented at the September 17th Planning Commission and September 24th Town Council public hearings

NOTABLE UPDATES

- The Town posted an opening for a Planner II or III/Senior Planner on June 27th. Staff has interviewed several candidates and has identified our top two candidates.
- Staff continue developing Standard Operating Procedures (SOPs) to enhance consistency, undergo a critical review of where we can improve, and create tools to assist new staff. This work will likely be ongoing through the end of the year. To date, staff has completed SOP's for planning review of building permits, invoicing, CivicClerk (posting agendas & packets), encroachment and mobile vending permits, PZ recruitment, recording documents, the referral process and sign permits.
- Staff has met with members of the community on development proposals ranging from small administrative permits to larger development, subdivision, and annexation applications. Pre-application meetings in 2024:
 - August - 5
 - July - 1
 - June – 6
 - May –3
 - April – 5
 - March – 8
 - February – 6
 - January - 2
- Community Development provides Spanish translation services. These services are utilized by Court, Administration, IT, Building, etc. We have provided 10 points of contact in June, this includes walk ins, phone calls, and transfers from other departments.
- Jess and Peyton are participating in the ICMA High-Performance Leadership Academy from August to early November.

Administrative Approvals (Encroachment Permits, Sign Permits,)

- Reviewed 1 Sign Permits for August.
 - 7 Sign Permits have been approved and issued so far this year.
 - 1 encroachment permit has been approved and issued this year.

MAJOR CONSTRUCTION PROJECTS

Business Name	Location	Status
Hockett Gulch Apts.	16186 Hwy 6	TCO issued for all 6 buildings. The final building anticipated mid September.
Haymeadow	91 Mountain Hope Circle	Building A, D, TCO complete.
Habitat for Humanity	3 rd Street	TCOs complete.

Slope and Hatch	115 East Second St Unit 1	Construction work commenced. Sign Permit issued. Inspections progressing.
Stone Concepts of Colorado	85 Marmot Ln	Permit pending.
Eagle County BMX	1700 Bull Pasture Rd	Payment (3) pending
Eagle Pool	1700 Bull Pasture Rd	PIF payment pending. Permit released. Inspections progressing
Alpine Lumber Shed	111 Chambers	Permit progressing

Building

The figures below show general activity levels not broken down by permit type (building, electrical, plumbing, mechanical, etc.)

TYPE OF WORK PERFORMED	EOY 2023	YTD 2024
Inspections (n/i Planning, Public Works)	1,885	1527
Permits Processed	411	246

- Staff currently engaged in a Regional Net Zero [Building] Cohort with other municipalities in both the Eagle Valley and Roaring Fork Valley. One meeting left.
- Recent updates to our permitting software, Community Core, now allow for contractors to upload registration documents for renewals and new accounts. This allows for enhanced service delivery by reducing staff processing of documents via email

P&Z and Council Meeting Schedule

August 2024
August 6 th (Planning Commission) - CANCELLED
August 13 th (Town Council) • CT24-02 7 Hermits Condominiums Filing 2 (Building D) <i>consent agenda</i>
August 20 th (Planning Commission)
August 27 th (Town Council) • CT24-04 7 Hermits Condominiums Filing 3 (Building B) <i>consent agenda</i> • AN23-01 West Eagle Housing – Determination of substantial compliance and schedule the annexation hearing.
September 2024
September 3 rd (Planning Commission) - CANCELLED
September 10 th (Town Council) • CT24-05 7 Hermits Condominiums Filing 4 (Building C) <i>consent agenda</i> • First Amendment the Development Agreement for 263 Sawatch <i>consent agenda</i> • <i>Sixth Amendment to the Haymeadow Annexation and Development Agreement (ADA) (tentative presentation, no resolution)</i>
September 17 th (Planning Commission) • AN23-01 West Eagle Housing • LUDC24-01 Text Amendment to the Land Use Code
September 24 th (Town Council) • CT24-06 7 Hermits Condominiums Filing 5 (Building E) <i>consent agenda</i>

October 2024
October 1 st (Planning Commission) PUDA23-01 Haymeadow PUD Amendment (tentative)
October 8 th (Town Council) AN23-01 West Eagle Housinh
October 15 th (Planning Commission)
October 22 nd (Town Council) PUDA23-01 Haymeadow PUD Amendment (tentative)

Upcoming Hearings in alternative format of upcoming hearings.

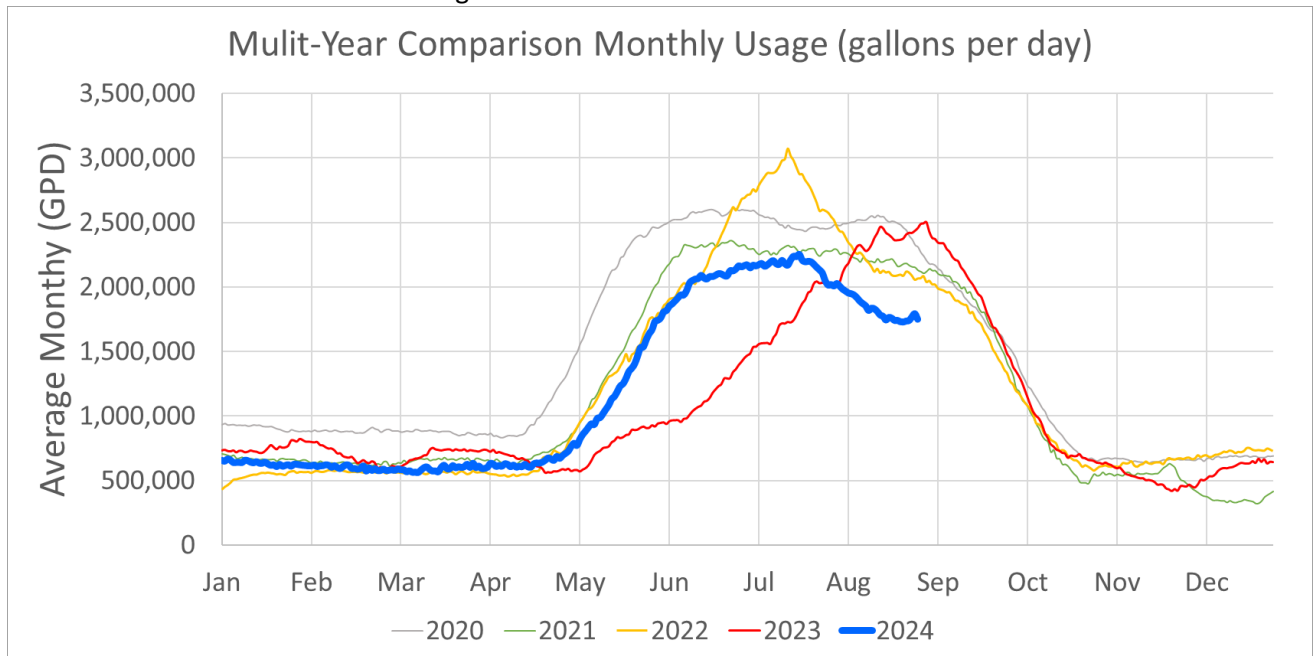
2024 Land Use Projects		Project Timelines											
Projects		September				October				November			
		PZ	TC	PZ	TC	PZ	TC	PZ	TC	PZ	TC	PZ	TC
West Eagle													
Annexation, Zoning, Subdivision, Development Permit													
Annexation Acceptance (August 27th)													
Planning Commission Public Hearing (September 17th)													
Town Council Public Hearing (October 8th)													
North Broadway													
Annexation & Zoning													
Annex Acceptance and XS (September 10th)													
Planning Commission Public Hearing													
Town Council Public Hearing													
Haymeadow													
ADA Amendment													
Town Council													
PUD Amendment													
Planning Commission Public Hearing													
Town Council Public Hearing													
Public Improvements Agreement													
Town Council Consent Agenda													
Preliminary Plan/Final Plat													
Planning Commission Public Hearing													
Town Council Public Hearing													
Code Amendment													
Planning Commission Public Hearing													
Town Council Public Hearing													
Sweet Leaf													
Planning Commission Public Hearing													
Town Council Public Hearing (TBD)													

PUBLIC WORKS

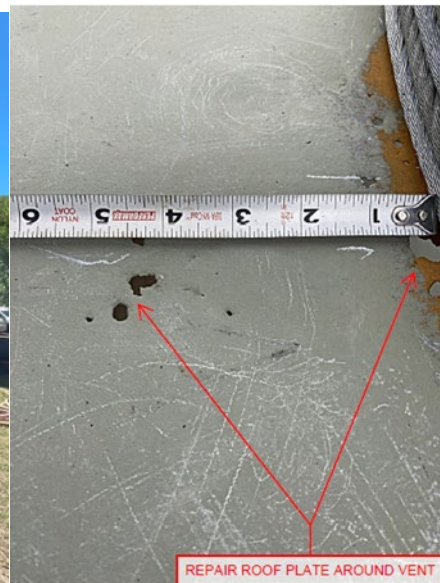
August 2024

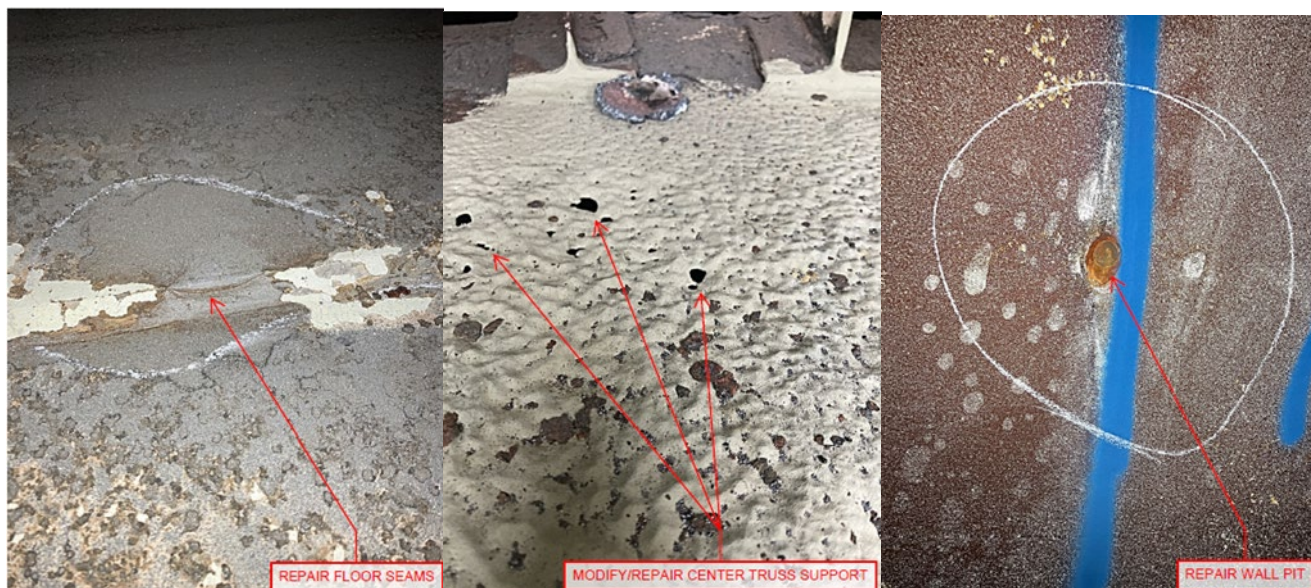
Water (Stephan Wilson, Utilities Manager)

- Production: Weekly water production has decreased by 500k gallons from 2.2 million gallons per day (MGD) in July to 1.7 MGD for the start of September. Weather dependent, total production should decrease to decrease over the next two months to bass usage of around 0.5 MGD.

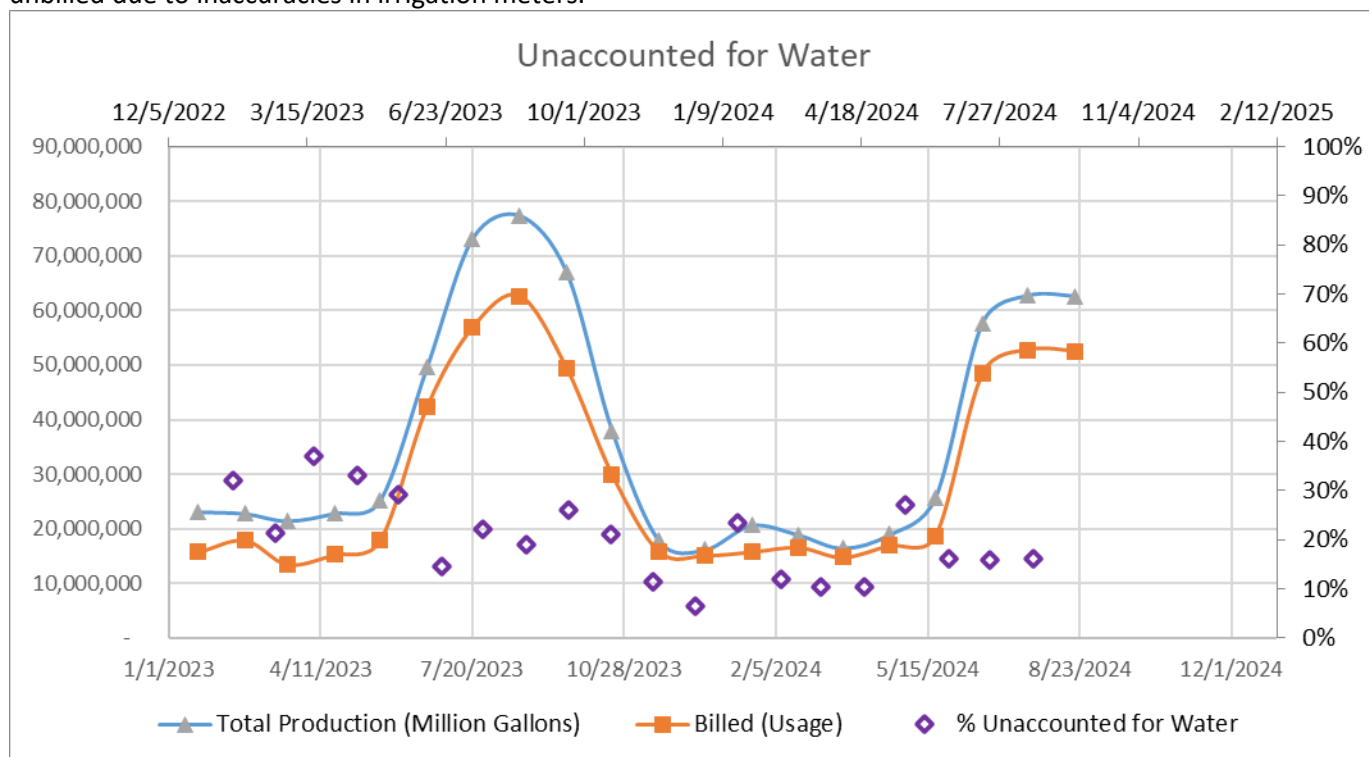


- Lead and Copper Rule: Sunrise Engineering and LRE have been working to identify homes with an unknown service line material as a part of the revised lead and copper rule. The inventory is now complete and being finalized to submit to CDPHE-WQCD.
- 2 MG Tank and Lower Eby Creek Tank: The 2 MG tank has been cleaned, shot blasted and surface prepped for structural work. The welding is anticipated to be completed 09/08. The tank exterior is currently being primed for coating once welding is completed. Repairs have mostly been to repair pitting on the wet interior and structural members.



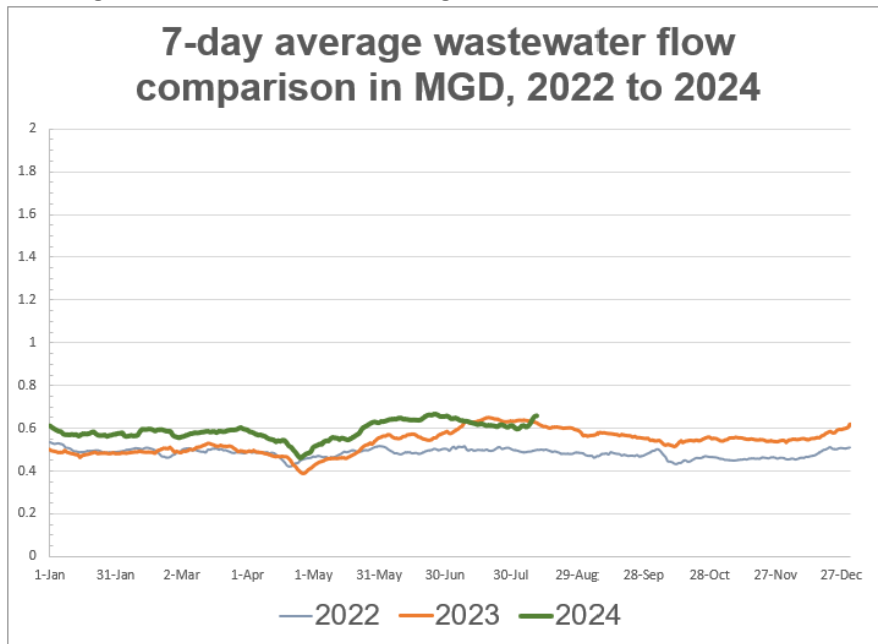


- East Eagle Tank: The 30% design package is being prepared for QA/QC. The CMAR documents – RFQ package have been prepared and submitted to the Town for review.
- Cemetery Tank: The Town is currently waiting for County approval. The conformed construction manual has been prepared and the contractor is working on bonding and insurance.
- Production vs Billing: For June through August unaccounted for water fell to 16%. Some water is likely going unbilled due to inaccuracies in irrigation meters.



Wastewater (Stephan Wilson, Utilities Manager)

- **Flows:** Weekly wastewater flows have trended between 0.6 MGD and 0.65 MGD in June through August showing an 8% increase in Town usage.



- **Wastewater Treatment Facility (WWTF) improvements:** A draft of 30% design documents has been submitted to and reviewed by the Town for equipment upgrades. Geotechnical and survey work is underway for a chemical building design. This building will house supplemental chemical feeds for carbon (Micro-C) and 30% sodium hydroxide (caustic soda) required for Total Inorganic Nitrogen (TIN) removal.



- **Collection System:** Collection system preliminary inspection was completed 09/04. Staff and DRC Construction are now beginning work on jetting and video inspection for 2024.
- **WWTF Headworks:** The shaftless screw on the grit removal system and wearable parts on the headworks fine screens were replaced. These are a part of the pretreatment process designed to remove grit, sand, silt, and fibers. The system prevents abrasive particles from damaging mechanical equipment, clogging pipes, and

reducing treatment efficiency.

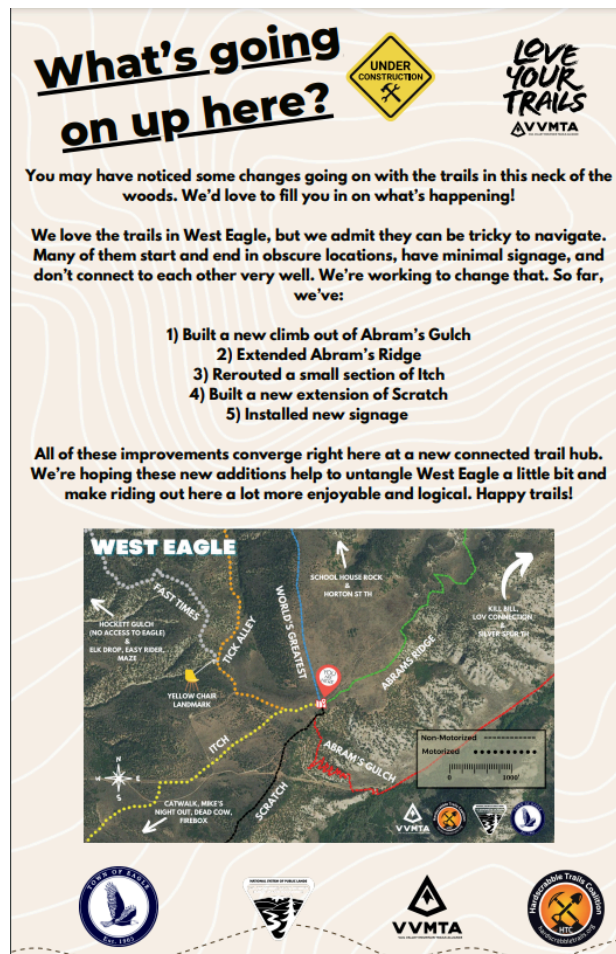


- Fire protection system upgrades at the wastewater treatment plant are in progress.
- The Town received a second public notice for permit modification No. 1(v2). This public notice version of the Town's permit included new unexpected features of temperature limits and an associated compliance schedule.

OPEN SPACE & TRAILS

(Brian Lieberman, Open Space & Trails Manager)

- Open Space and Trails Master Plan Implementation Projects – The Vail Valley Mountain Trails Alliance (VVMTA) and Hardscrabble Trails Coalition (HTC) have started to implement the projects approved in the Eagle area [Environmental Assessment completed earlier this year](#). All projects are located on lands Managed by the Bureau of Land Management (BLM) adjacent to the Town of Eagle and are largely based on projects identified in the [Town's 2022 Open Space and Trails Master Plan](#).
 - **Projects completed so far:**
 - 1 - The Good Bit (beginning of Boneyard)
 - 2 - Dirtsurfer 2.0
 - 3 - Haymaker Berms reconfiguration
 - 4 - Abrams Gulch Reroute
 - 5 - Abrams Ridge Reroute (could still use a little polishing, but any tires on it are appreciated)
 - 6 - West Eagle Trail Hub to have Itch, Scratch, World's Greatest, Abrams Gulch and Abrams Ridge ALL MEET IN 1 PLACE! See graphic below for map and details.
 - **Projects Still in Progress – Crews return to Eagle in September to complete remaining work.** Cow Camp Trail Hub. We will be having more work days in the near future to continue the work to have Itch, Scratch, Reynolds Wrap and Cat Walk ALL MEET IN 1 PLACE! There is a good section of Reynolds that is done and can use tires on it anytime you are up there to help keep the vegetation from growing back.
 - Mikes night out reroutes start in September.
 - **Here is a poster explaining some of the work completed in west Eagle from Hardscrabble Trail Coalition:**



- Open Space Restoration Project RFP

Staff are working on getting a consulting firm under contract to begin additional assessment work for the Brush Creek and Hernage Creek restoration projects. In 2024, the consulting firm will complete geomorphology, vegetation, and wetland studies to define the scope for implementing the restoration project. Implementation is planned for 2025.

The restoration projects will focus on two areas. The first area is the lower Brush Creek corridor. The Brush Creek project area includes two open space properties owned by the Town along the lower reach of Brush Creek. The properties adjoin both sides of Capital Street near the Brush Creek Pavilion. Brush Creek traverses through both properties.

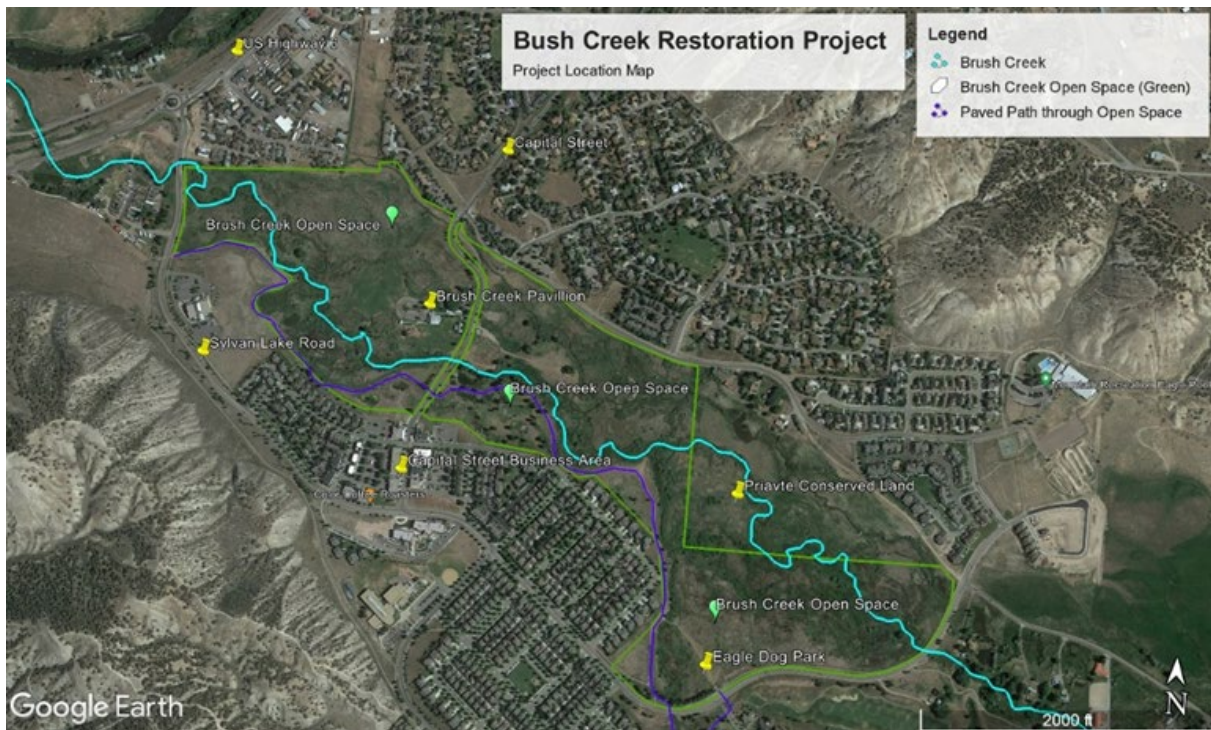


Figure 1: Map of the Brush Creek project area. The two Town owned open space properties are outlined in green, with Brush Creek labeled in light blue.

The “Johnsons Corner and Brush Creek Open Space Management Plan” details the natural resources issues identified: “The Brush Creek riparian corridor would benefit from bank stabilization and vegetative enhancements to improve ecological diversity and to stabilize the system.”

The second area is Hernage Creek. The Hernage Creek project area is located in the open space property between the Bureau of Land Management (BLM) boundary and Hernage Creek Road (see Figure 2). The reach is approximately 1.7 miles.



Figure 2: Map of the Hernage Creek project area. Town owned open space properties are outlined in green, with Hernage Creek labeled in blue. The project area is outlined in yellow. The project area is located just south of Hernage Creek Road.

The “Abrams Creek Eagle Ranch Open Space Management Plan” details the natural resources issues identified: “Hernage Creek is experiencing erosion and channel downcutting, which has stressed and degraded the riparian community.”

- Interpretive Signage Project

For the past year, staff have been working with a design firm and Walking Mountains Science Center to develop interpretive signage for the paved path along Brush Creek. The signage will focus on educational material about local wildlife including information about how to mitigate impacts on wildlife while recreating, the importance of keeping distance from wildlife (particularly in winter), the need to keep dogs on a leash, and the significance of respecting seasonal wildlife trail and open space closures. All signs will be bilingual.

The signs were installed on Thursday (9/5) and Friday (9/6)! There are about 18 signs in total. Go check them out!

- Open Space Vegetation and Soil Analysis project

The Ground Up, a soil health management company, is partnering with the Eagle County Conservation District and the Eagle Ranch Wildlife Committee to complete soil and vegetation analysis on open space properties owned by the Town. All of the fieldwork has been completed and the soil samples have been sent to a lab. The team will be working on a report that will include results and recommendations for improvements to soil and vegetation health. Most project locations have been identified by Colorado Parks and Wildlife as areas to improve vegetation to attract wintering wildlife.

- Hockett Gulch Winter Management

The Open Space and Recreation Advisory Committee is interested in evaluating the proposed winter management of the new open space property dedicated to the Town from the Reserve at Hockett Gulch. The Committee will work with the community and stakeholders (such as Colorado Parks and Wildlife) to determine if a winter closure would be appropriate to recommend for implementation. Currently, the property is not subject to a winter closure.

- OSRAC Vacancy and Term Renewals

Staff are working on updating term limits for the Open Space and Recreation Advisory Committee to avoid all terms ending at the same time this December. Staff and the Committee agree that extending the four committee members who were appointed after the original members to 2026 would be the best way to fairly stagger the existing terms. Staff are working with Ruthie to update the bylaws and will present them to the Council once we have a draft. Staff recommends addressing the term changes before posting the existing vacancy on the committee.

- Dog Park RFP

Staff released an RFP for community engagement and conceptual design development services for the Eagle Dog Park. The RFP deadline is September 27. The staff seeks a landscape consulting firm with a background in park design that can collect community feedback and develop a conceptual design (with a budget) to propose for the Dog Park. Staff hopes that community engagement can begin this fall and that a conceptual design would be complete in time for budget development season next year.

- High School Race

The High School Mountain Bike Races will take place from September 6 to 8 and again from September 20 to 22. The Haymaker trail will be closed during the races.

ENGINEERING

(Ryan Johnson, Town Engineer, and Martha Miller, Project Manager)

General Updates (RJ):

- The majority of the team's effort has been project management for summer construction and ongoing design projects.
- Engineering will be looking to fill the Engineer I or Engineer II position.
 - The position has been posted and has received applications that are currently under review.
- Modifications to the Public Works Facility office space will be necessary to accommodate future positions. Initial office modification plans are being developed.
- Preliminary work has begun on replacing the Public Works Manual with updated Engineering Standards and Construction Specifications. Similarly, right of way and grading permit processes are under review and will undergo modifications

Right of Way Permitting Summary (RJ):

Active ROW Permits: 6

Resurfacing and Pavement Management

- 2024 Resurfacing Project – Chambers and Marmot paving has been completed. Patching on capitol has been completed. Paving of the Nogal Gulch Trail is completed and select patching along the Eagle valley Trail is underway.

Capital Improvement Projects

- Howard & 4th Street – Construction is underway on this project. The contractor has completed the underground utility for water, sewer, and storm. Preparation of road subgrade and subbase is underway. The next utility work will consist of sanitary sewer main installation and storm sewer.
- Grand Avenue Corridor – 60% design has started. Priority will be given to the railroad submittal; analyzing the ROW impacts at the CDOT/Grand Ave motel/Castle Drive area; and property access point locations.
- Capitol Street – Field work including topography survey, subsurface utility engineering, and geotechnical engineering will be completed in September. Using the field information, conceptual designs and cost estimates will follow. Staff will schedule a work session with Council to review the conceptual designs and cost estimates. There will also be an Public Open House in late fall/early winter.
- Brush Creek Water Transmission Main & PRV – The design kicked off on August 21st. Field surveys, topo and utility, are in progress. The project includes 7,600 LF of water main design, water modeling, survey, and PRV upgrades. Construction late summer, early fall 2025.
- Sylvan Lake Road – 90% design documents are complete. A review meeting with CDOT occurred on June 25th and minor comments were received. Staff are working on final clearances with CDOT. The project will be advertised in Oct/Nov. The design includes a new sidewalk between MacDonald and Capitol Streets and intersection improvements at Capitol Street, McDonald, and Eagle Ranch Road using the \$1M MMOF grant.
- Safe Streets of All (SS4A) Action Plan – The steering committee has been selected and initial public outreach has started.

STREETS

(Kevin Fontana, Operations Manager)

- Streets team spent a lot of time over the last few weeks cleaning out storm drains.
- We were able to get some of the high traffic areas and school zone crosswalks grinded and put in place.
- Continued to clean out the oil containment area and hauled 4 loads illegally dumped trash from that location.
- Lots of weeping has taken place around town to prep for the roadways to be striped first week of September.
- Received our last EV (F-150 Lightning) for the year

BUILDINGS & GROUNDS

(Kevin Fontana, Operations Manager)

- Terrace Park Public Restroom update
Contractors are still working on tis as time allows.
- Replace over a dozen dome trash cans around the town with bear proof cans.
- Cleaned up the vegetation on Broadway and cut back trees.

TOWN CLERK

August 2024

EAGLE NEWS

Stay Updated on the Latest Town Updates

- Construction Project Update
- Letter from the Mayor
- New Community Digital Dashboard
- Eagle Roadway Safety Action Plan
- Compost Pail Giveaway
- Community Table Registration
- Tube-a-Palooza



[Ask the Town](#)

- E-bike violations inquiry
- Littering report on Haystacker
- Terrace Park mowing inquiry
- Storm drain inquiry
- Utility payment inquiry
- River Run Apartment inquiry (wrong entity)

Records Requests

2018	2019	2020	2021	2022	2023	2024
16	13	16	30	41	29	34

**Various Town Departments respond to Records Requests*

Licensing

- 2024 Business License New & Renewals – 312 licenses
- Liquor License Authority & Administrative Approvals
 - Renewal reminders sent – new law requires local notification in addition to State notification
 - Slope and Hatch – New License Granted Liquor License Authority
 - Your Father’s Office – Temporary Modification of Premises Liquor License Authority
 - Chair 4 LLC dba El Segundo – Renewal Administrative Approval
 - City Market – Renewal Administrative Approval
 - Eagle Diner – Renewal Administrative Approval
 - Twisted Root Bistro – Permanent Modification Request (scheduled September 11) Liquor License Authority
 - Special Event Liquor Permits
 - Eagle Chamber of Commerce
 - Eagle County Democrats

Training/Meetings

- August 6 – Special Event Discussion
- August 7 – Eagle Municipal Court
- August 8 – Communications Meeting
- August 13 – Town Council Meeting
- August 14 – Business License Cross-Department Meeting
- August 15 – Liquor License Authority
- August 21 – Eagle Municipal Court
- August 27 – Internal Administration Budget Meeting
- August 27 – Town Council Meeting
- August 28 – Internal Development Plan Discussion

Sales Tax – 2024 Sales Tax

2024					
Month	Filing Period	Revenue Period	O/U	Online Sales	Online Retailers
Jan	\$ 557,533.05	\$ 821,112.05	4%	\$ 117,976.28	2236
Feb	\$ 729,552.42	\$ 810,272.13	21%	\$ 128,837.94	1963
Mar	\$ 919,947.73	\$ 707,787.05	1%	\$ 82,709.92	2045
1 Q	\$ 2,207,033.20	\$ 2,339,171.23	8%	\$ 329,524.14	
Apr	\$ 687,650.02	\$ 763,852.47	-6%	\$ 106,959.79	2080
May	\$ 760,446.12	\$ 655,520.37	-6%	\$ 109,466.26	2008
Jun	\$ 813,449.95	\$ 730,498.70	-3%	\$ 100,133.62	2076
2 Q	\$ 2,261,546.09	\$ 2,149,871.54	-5%	\$ 316,559.67	
Jul	\$ 825,937.89	\$ 799,652.78	-2%	\$ 98,315.99	2284
Aug		\$ 841,793.73	0%	\$ 104,790.60	2699

2023					
Month	Filing Period	Revenue Period	O/U	Online Sales	Online Retailers
Jan	\$ 721,493.40	\$ 793,838.43	5%	\$ 97,085.03	2016
Feb	\$ 681,684.40	\$ 675,138.60	5%	\$ 91,521.57	1792
Mar	\$ 748,092.11	\$ 698,140.28	5%	\$ 97,830.73	1892
1 Q	\$ 2,151,269.91	\$ 2,167,117.31	5%	\$ 286,437.33	
Apr	\$ 681,955.40	\$ 802,334.06	16%	\$ 125,304.23	1921
May	\$ 745,051.07	\$ 700,216.68	0%	\$ 98,906.78	1929
Jun	\$ 806,014.23	\$ 752,888.75	9%	\$ 102,648.68	2000
2 Q	\$ 2,233,020.70	\$ 2,255,439.49	8%	\$ 326,859.69	
Jul	\$ 819,983.61	\$ 813,185.50	7%	\$ 100,650.58	2063
Aug	\$ 819,101.77	\$ 839,114.42	3%	\$ 105,800.61	2047

POLICE DEPARTMENT

August 2024



2024 August Calls for Service: 951
2024 Jan.-August Calls for Service: 7,847

2023 July Calls for Service: 1,201
2023 Jan.-July Calls for Service: 8,161

Eagle County Animal Services - calls in the Town of Eagle for the month of August 2024	
FAILURE TO CONTROL	18
ANIMAL BITE/ATTACK	1
BARKING	1
PROTECTIVE CUSTODY	0
WELFARE CHECK	1
OTHER	5
TOTAL CALLS FOR SERVICE	26
GPS Hours in Jurisdiction 43.87	

August Code Enforcement Updates

Code Updates

Code Violation	Area	Outcome	Status
Unauthorized Building Remodel	332 Grand Ave	Violation Letter Issued	Pending 30 Day Warning
Unauthorized Building Use Hostel	332 Grand Ave	Violation Letter Issued	Pending 7 Days Stop Use
Noxious Weed	Bluffs	Pending Notification	
Sign Violation	50 Chambers #N	Violation Letter Issued	Sign Removed
Sign Violation	50 Chambers #J	Violation Letter Issued	Signs Removed
Illegal Structures	Eagle Ranch	4 Bridges on Open Space Pending Notifications	Pending Letters Approval

Parking Updates

Area	Warnings	Citations
Bluffs	5	0
Broadway	18	6
Brush Creek Ter	0	0
Bull Run	0	0
Eagle Ranch	2	1
Highlands	1	0
Nogal	2	1
Orchards	0	0

Total Warnings	Total Citations	% Of Citations to Warnings
28	8	28%

In early August we hosted National Night Out. This year's event featured free food, kids' activities such as a climbing wall, facepainting and bouncy castles, and visits from other local first responder agencies including Greater Eagle Fire Protection District and Eagle County Paramedic Services. We also got a special visit from HAATS in their helicopter and once on the ground, they provided special tours to families. Special thanks to Town of Eagle, Eagle Public Works and SRO Sriver for the hours of hard work in organizing this event! We'd also like to recognize all the local businesses and organizations that showed up and/or contributed to our giveaways: JB T-Shirts Silkscreen, Embroidery and Design, Capitol Theater, City Market, Moe's Original BBQ, Vail Health, Eagle Climbing and Fitness, High Rockies Harm Reduction, My Future Pathways, Mountain Youth Coalition, Jason Gregger- musician, Bright Future Foundation, YouthPower 365, Resort Kids Colorado, HAATS, Mountain Recreation, Sign Gypsies, and High Country Henna. And last but not least, thank you to all of the community members who came out to the event!

Officer White organized the first Chill with a Cop event of 2024 at the park east of the Eagle Villas. Officers had the chance to engage with community members over popsicles and a game of soccer. Special thanks to City Market for donating some frozen treats to the cause!

We continue to receive reports of bear sightings in residential neighborhoods. Eagle PD would like to remind the community to secure trash within bear resistant containers, and to not approach bears in the area. Visit the U.S. Forest Service's website for more tips on being "bear aware": <https://www.fs.usda.gov/visit/know-before-you-go/bears>.

At a local park one afternoon, a concerned citizen called in an unresponsive adult patient found in one of the bathrooms. Officer Stahl arrived first on scene and after quick evaluation, administered Narcan. The patient began moving a bit and was transported to the hospital after Greater Eagle Fire Protection District and Eagle County Paramedic Services arrived on scene. The patient survived and medical professionals suspected the patient suffered from a drug overdose. Officer Stahl's quick response and actions saved the patient's life that day, and we are very grateful to have him on our team. We'd also like to thank the community member for calling 911 so that the patient could be helped.

Eagle PD took delivery of 8 mobile barricades from Meridian Rapid Defense Group. These mobile barricades can be deployed quickly and easily before events to help maintain street closures by preventing unpermitted vehicles from entering the event. Unlike other barricades, these barricades are easily moved and deployed and allow for pedestrian and emergency vehicle access without needing to be moved. These barricades were successfully deployed at the Down Valley Vibes festival with positive feedback from the community.

Lieutenant Causey, Records Technician Sutton and Records Technician Vaughan attended virtual Colorado Open Records Act/Colorado Criminal Justice Records Act training. This crucial training is held annually and hosted by the Colorado Certified Records Network.

Eagle PD officers assisted Colorado State Patrol and Eagle County Sheriff's Office after a motor vehicle crash resulted in a rollover on Highway 6. Bystanders reported that the driver of the vehicle got himself out and fled the scene, possibly in another vehicle. After the driver was identified and located at his residence in Eagle, CSP investigated and charged him with driving under the influence along with other traffic-related offenses.

Now that school is back in session, Eagle Police Department would like to remind drivers of the following:

1. Stay alert and avoid distracted driving. Put your phone down!
2. Slow down in school zones and follow your schools' drop-off and pick up procedure.
3. Yield to parents and students using crosswalks.
4. Never pass a bus loading or unloading children.
5. Anticipate traffic delays at the beginning and end of school days and plan accordingly!
6. Let's make this school year safe and fun for everyone!

The Eagle Police Department is requesting public assistance in identifying a male and two female suspects involved in a theft at Boone's Wine and Spirits in Eagle, Colorado on the afternoon of 08/25/2024. The individuals are suspected to have stolen over \$2,000.00 worth of alcohol. If you can identify any of the individuals in the surveillance photos or have any additional information about this incident, please contact Officer Deering at nick.deering@eaglepolice.org or by calling 970-479-2201. Photos can be viewed online at www.facebook.com/EaglePD. You can also remain anonymous and contact the Eagle County Crime Stoppers by submitting your tip online at www.p3tips.com or send a tip using the Free 'P3 Tips' mobile app. If your tip leads to the arrest and indictment of any suspect involved, you could earn a cash reward from the Eagle County Crime Stoppers. Persons charged with crimes are presumed innocent until proven guilty in a court of law.

MUNICIPAL COURT		August 2024 Statement	
Court held August 7 and 21			
Citations Issued	Current	YTD	2023
Animal Control	3	43	110
Juvenile	0	11	16
Misdemeanor/Ordinance	1	4	9
Parking	6	89	176
Traffic	7	91	119
Total	17	238	430
Fines and Fees Collected	Current	YTD	2023
Total Court Costs	\$ 525.00	\$ 4,240.00	\$ 6,920.00
Total Fines	\$ 1,015.00	\$ 16,330.00	\$ 28,685.00
Total Surcharges	\$ 210.00	\$ 2,310.00	\$ 3,610.00
Total Third Party (Restitution)	\$ -	\$ 2,299.21	\$ 1,084.31
Total	\$ 1,750.00	\$ 25,179.21	\$ 40,299.31
Dispositions (Payments or Court Appearances)	Current	YTD	2023
Animal Control	0	37	110
Juvenile	0	5	16
Misdemeanor/Ordinance	0	4	9
Parking	1	81	176
Traffic	1	77	121
Total	2	204	432
Outstanding Fines and Fees at Collections	Total	Collection	
Current	\$ -		
1-30 Days Past Due	\$ -		
31-60 Days Past Due	\$ 1,420.00		
61-90 Days Past Due	\$ 500.00	**At Collections	
91-180 Days Past Due	\$ 20,495.47	**At Collections	