

**UTILITY
COPY**

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

UTILITY PERMIT
(Major)

DIMOND BOULEVARD
W.O. #:

Approval
Recommended: Talun Rodriguez

Date: 7/7/2022

Title: Regional Permit Officer

Region: Central

THE STATE OF ALASKA, acting by and through the DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES, hereinafter called the DEPARTMENT, grants a Utility Permit to **AWWU - Anchorage Water & Wastewater Utility** hereinafter called the PERMITTEE, to construct, install and thereafter perform routine maintenance, use and operate a(n) **20, 24- Inch Iron, 36-Inch Plastic Sewer Mains** hereinafter called the FACILITY, located as follows: **along the south side of W Dimond Blvd, starting approx. 130ft east of Strathmore Dr, extending east, and crossing on the west side of Lakehurst Dr**

M.P.: 3.4530 to 3.5270

across, along or under property of the DEPARTMENT, acquired and utilized in the operation and maintenance of a State Transportation System, at the aforementioned locations and/or positions, and in strict conformance with plans, specification and special provisions attached hereto and made a part hereof, and not otherwise.

A. In accepting this Utility Permit for the FACILITY, the PERMITTEE agrees to comply with the provisions of AS 02.15.102, AS 02.15.106, AS 19.25.010, AS 19.25.200, AS 35.10.210, and AS 35.10.230; the terms, requirements and regulations as set forth in 17 AAC 15 as authorized under Administrative Procedures Act, AS 44.62.010 -- 44.62.650 and the applicable policies, directives and orders issued by the Commissioner of the DEPARTMENT.

B. The entire cost of routine maintenance operations of the FACILITY are to be paid for by the PERMITTEE, and said FACILITY shall comply with all applicable codes.

C. The PERMITTEE'S construction, installation and maintenance operations of the FACILITY shall be accomplished with minimum interference and interruption of the use, operation and maintenance of the DEPARTMENT'S right-of-way and/or public facility; or as hereinafter provided in the DEPARTMENT'S Special Provisions, attached hereto and made a part hereof, and shall at all times in no way endanger the general public in its use of the public property. Day-to-day operational control of work activities authorized by this PERMIT are the responsibility of the PERMITTEE subject to the terms of the PERMIT.

D. The DEPARTMENT, in granting this Utility Permit, reserves the right to use, occupy and enjoy its property for a public transportation system and for public transportation purposes in such a manner and at such times as it deems necessary, the same as if this instrument had not been executed by the DEPARTMENT. If any such use by the DEPARTMENT shall at any time necessitate any change in location of said FACILITY, or any part thereof, such change or alteration shall be made by the PERMITTEE according to the terms of one of the two clauses set out below as identified by a check mark before the applicable clause.

_____ (1) The PERMITTEE will be reimbursed in full by the DEPARTMENT for all costs incurred in making such changes or alterations to the FACILITY that qualify under the provisions of AS 02.15.104(c), AS 19.25.020(c), or AS 35.10.220(c).

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(2) The PERMITTEE shall promptly remove or relocate said FACILITY at no cost to the DEPARTMENT in accordance with the provisions of AS 02.15.104(c)(4) or (5), AS 19.25.020(c)(4) or (5), or AS 35.10.220(c)(4) or (5).

E. On public property being utilized for right-of-way on highways originally established as, or converted to, controlled access highways, ingress and egress thereto for maintenance and operation of the FACILITY is limited to the locations as designated by the DEPARTMENT. However, the DEPARTMENT may allow the PERMITTEE ingress and egress whenever such is necessary to effect repairs and maintenance of the FACILITY and when no other access is available. If the DEPARTMENT determines such access is in conflict with the use of the controlled access highway, the FACILITY will be relocated.

F. The State of Alaska and the DEPARTMENT for the purpose of this Utility Permit, hereby disclaim any representation or implication to the PERMITTEE that the DEPARTMENT has any title in any property other than the interest conveyed to the DEPARTMENT for specific purposes as described by the instrument conveying the land to the DEPARTMENT.

G. The PERMITTEE by these presents accepts notice and agrees that any expenses or damages incurred by the PERMITTEE through the abandonment, removal, reconstruction or alteration of any public facility, or incurred by said PERMITTEE as a result of this disclaimer shall be borne by said PERMITTEE at no expense whatsoever to the DEPARTMENT or the State of Alaska.

H. The waiver or breach of any of the terms or conditions of this Utility Permit or provisions of the Administrative Code, by the DEPARTMENT shall be limited to the act or acts constituting such breach, and shall never be construed as being continuing or a permanent waiver of any such term or condition, unless expressly agreed to in writing by the parties hereto, all of which shall remain in full force and affect as to future acts or happenings, notwithstanding any such individual waiver or any breach thereof.

I. Only the Commissioner of the DEPARTMENT or his delegate shall have the authority to waive any term or condition herein contained.

J. The PERMITTEE shall not assign or transfer any of the rights authorized by this Utility Permit except upon notification to and approval by the DEPARTMENT.

K. The PERMITTEE agrees to comply with all regulations concerning present and future use of the public property acquired, or reimbursed by Federal-aid funds.

L. The PERMITTEE shall give the DEPARTMENT not less than (10) days prior written notice, unless otherwise agreed to by the parties hereto, of the PERMITTEE'S intention to enter upon the DEPARTMENT'S property for the purpose of major maintenance, reconstruction, altering or removal of the FACILITY, provided, however, that normal routine maintenance is expected from this provision, and provided further, that in any instance of sudden emergency requiring prompt and immediate action to protect the public safety, or to mitigate damage to private or public property, no prior notification to the DEPARTMENT will be required. The PERMITTEE shall notify the DEPARTMENT and Alaska State Troopers, of the location of the emergency and extent of work required by the most expeditious means of communication as soon as reasonably possible to do so, and the PERMITTEE shall take such measures as are required to protect the health and safety of the traveling public or public facility users for the duration of such emergency operations.

M. The PERMITTEE shall indemnify and hold harmless the State of Alaska and the DEPARTMENT, or either of them, from all liability for damage to property, or injury to or death of persons, arising wholly or in part from any action taken by the PERMITTEE in relation to the PERMITTEE'S FACILITIES on DEPARTMENT right-of-way or other permitted locations. (17.AAC 15.061)

N. The PERMITTEE is subject to all previous easements and Utility Permits and any damage to any other utility will be the PERMITTEE'S responsibility.

O. The PERMITTEE agrees to be responsible for the compliance with all applicable Federal, State, and local laws, regulations, codes and ordinances.

P. The PERMITTEE agrees to be responsible for obtaining all other appropriate permits or letters of non-objection needed from Federal, State and local agencies, or conflicting lessees, property owners, or utilities.

Q. The PERMITTEE may be required, within thirty (30) days after completion of any improvement placed upon or in the premises herein, deliver to the DEPARTMENT as-built drawings showing the location and construction specifications of said improvement.

R. This Utility Permit is issued under the provisions of applicable Alaska Statutes and Administrative Code effective as of the date of execution of this instrument by the DEPARTMENT.

S. The PERMITTEE agrees that the FACILITY will be constructed in accordance with the following attached documents. The PERMITTEE affirms that it is solely responsible for the content of the attached documents. Issuance Approval of this Permit does not imply the Department's approval of the attached documents. In the event of any conflict between the attached documents and the Permit, the Permit language shall control.

1. Plans dated **10/29/2021**, consisting of **12 page(s)**
2. Specifications dated _____, consisting of _____ **page(s)**; and
3. _____,

which, by this reference, are made a part hereof, and in accordance with the applicable codes pertaining to the FACILITY, and not otherwise, unless prior written authorization is obtained from the DEPARTMENT to do so.

T. The PERMITTEE agrees to reimburse the DEPARTMENT for actual costs of inspection and testing as required during the performance of the work proposed by the PERMITTEE. The scope of inspection and testing shall be determined by the Regional Utilities Engineer. The costs billed to the PERMITTEE will be the actual DEPARTMENT'S costs incurred while performing the inspection and testing.

U. The PERMITTEE agrees by entering on the DEPARTMENT'S property to indemnify the DEPARTMENT and its contractors of all costs tangible or intangible that would be the result of any delay in a construction project of the DEPARTMENT caused by work done under this permit.

V. The PERMITTEE agrees to reimburse the DEPARTMENT for the length of the facility to be installed in excess of 200 feet (as indicated on the attached plans referred to in paragraph "S" above) which is calculated to be **246** linear feet at \$1.00 per foot = **\$246.00**, (but not to exceed \$10,000) payable at the time the permit is executed by the DEPARTMENT, unless arrangements have been made for the PERMITTEE to be billed on a monthly basis.

PIPE CARRIERSTransmittant: **Domestic Wastewater**Flash Point: **N/A**Working Pressure: **0-2 psi (area in ROW)**Temperature: **45 degrees F**Number of Conduits (Pipes): **2 force mains & 1 gravity**Diameter of Pipe: **20 inch and 24 inch existing parallel force mains / 48 inch existing RCP Crossing**Type and Class of Pipe: **Existing pipes: 20 inch DIP Class 3 / 24 inch DIP Class 53 / 48 inch RCP**Encasement Diameter and Type: **Slipline existing 48 inch RCP with 36 inch HDPE, SDR11**

Vent Locations:

Left of Highway Centerline:

Right of Highway Centerline:

Cathodic Protection:

Crossing Angle: **90 degrees**Length: **96ft**Depth Below Road Surface (Min. 48"): **120**Depth Below Ditch Bottom (Min. 48"): **96**Depth 10 Feet Outside Slope Limits (Min. 36"): **120**Method(s) of Crossing Installation: **Jacking**Longitudinal Facility Length: **350ft**

Offset from Highway Right-of-Way:

Offset from Highway Centerline: **65ft**Offset from Edge of Pavement: **0-30ft**Method(s) of Longitudinal Installation: **Jacking****Construction Code(s) Applicable: Standard Specifications for Highway Construction (2020)****ADDITIONAL INFORMATION: Existing force main DIP pipes will be rehabilitated using CIPP liner and small sections will be removed and replaced with PVC C905. Pressure/Gravity Junct Box replaced. Existing 48 inch RCP gravity sewer crossing Dimond will be rehabilitated using 36 inch HDPE SDR11 slipline**

SPECIAL PROVISIONS

THE PERMITTEE PROMISES TO COMPLY WITH THESE SPECIAL PROVISIONS BY SIGNATURE ON THE PERMIT. IT IS THE PERMITTEE'S RESPONSIBILITY TO FAMILIARIZE ITS' EMPLOYEES, AGENTS, AND/OR CONTRACTORS WITH THESE PROVISIONS, AND INSIST ON STRICT COMPLIANCE.

1.0 GENERAL AND ADMINISTRATION

- 1.1 The Permittee shall have a copy of this permit at the work site at all times.
- 1.2 The permit, together with these Special Provisions, shall take precedence over any additional plans exhibits, attachments, and/or schedules should discrepancies appear.
- 1.3 All contact between the Department and the Permittee's Contractor shall be through a representative of the Permittee. If the Permittee chooses to perform the work with other than its own forces, a representative of the utility shall be present at all times unless otherwise agreed to by the Department. Failure to comply with this provision is grounds for restricting any further work by the Permittee in the Department's right of way.
- 1.4 Any rights granted by this permit may not be assigned or transferred to another entity without prior written approval from the Department. If the utility is sold to another utility or merges with another utility, the new utility shall inform the Department in writing within 30 days after the date of transaction.
- 1.5 Any request for waiver or exception of Special Provision(s), or any request for change in location, alignment, or construction method, shall be submitted in writing to the Regional Engineer.
- 1.6 This permit will expire if construction or installation of the Facility has not started within one year after the date of approval, unless the Permittee obtains an extension of time in writing from the Department.
- 1.7 The Permittee agrees to provide design locates, at no cost to the Department, upon request. If a utility locate service is not available, reference markers shall be installed and maintained at both ends of underground highway crossings, and at angle points in the alignment of the underground Facility. Where utilities are attached to a bridge, the Permittee will attach a plate on the conduit at each abutment describing the content of the pipe or conductor, and the name and phone number of the owning utility.
- 1.8 The Regional Utilities Engineer may assign an inspector or inspectors in order to insure compliance with the provisions of this utility permit. The inspector has the authority to suspend all work in the event of noncompliance.
- 1.9 The Permittee, on behalf of itself and its contractors, officers, officials, employees, and agents, shall indemnify, hold harmless, and defend at its sole cost and expense, the Department, its contractors, officers, officials, employees, and agents from any and all fines, costs, claims, damages, liquidated damages, judgments, or civil penalties assessed by the Department of Environmental Conservation pursuant to AS 46.03.760(E), arising wholly or in part from any action taken by the Permittee in relation to the Permittee's Facilities on Department rights of way or other permitted locations. This indemnification provision is in addition to and shall be construed as consistent with General Provision M.

2.0 COORDINATION

- 2.1 The Permittee shall notify the Department's Regional Utility Permit Officer ten (10) days prior to beginning work on the Facility:

Central Region
(907)269-0644
(907)269-0654 (fax)
cr.utilitypermits@alaska.gov

- 2.2 The Permittee agrees to complete the Facility under this permit by **10/01/2022**.
- 2.3 The Permittee agrees to replace, in-kind, any and all asphalt/concrete disturbed by work allowed under this permit and shall schedule work to coincide with the availability of the aforementioned materials.
- 2.4 The Permittee shall coordinate all work on the Facility with the Department's District Maintenance Superintendent, **Kurt Koehler**, phone number **907-338-1432**.
- 2.5 The Permittee agrees to coordinate work on the Facility with other projects, both public and private, that may occur within the project limits covered by this permit. The Permittee agrees not to interfere or hinder the work being performed by other contractors.

3.0 ENVIRONMENTAL

- 3.1 If the Permittee, its Contractor, or Agent discovers environmental contamination in the right-of-way while constructing the Facility, they shall immediately stop work and notify the Department's Regional Utility Engineer.
- 3.2 The Permittee is not responsible for the cost of investigation, cleanup, or disposal of any contaminated soils it discovers during work on the Facility within the Department's right-of-way, **unless**:
- A. The Permittee, its Contractor, or Agent fails to immediately notify the Department of the contamination, or;
 - B. The contamination is attributed to the Permittee's Facility, or actions of the Permittee, its Contractors, or Agents.
- 3.3 If the Permittee, its Contractor, or Agent discovers a cultural, historic, or archeological resource while constructing the Facility, they shall stop work immediately and contact the State Historic Preservation Office at (907) 269-8721.
- 3.4 The Permittee shall not hold the Department responsible for any delay, redesign, rerouting, or additional cost due to encountering environmental contamination, or cultural, historic, or archeological resources.

4.0 NOTIFICATIONS

- 4.1 The Permittee is responsible for notifying businesses and residents that front the project of scheduled road and driveway closures, or any work that may affect them. Property owners shall receive the notices a minimum of one (1) week prior to commencement of the work. Notices shall include a contact name and number of a representative of the Permittee.

5.0 TRAFFIC CONTROL

- 5.1 The Permittee shall apply for a Lane Closure Permit (LCP) from the Department a minimum of twenty (20) working days before beginning any construction, including maintenance. The application for LCP shall include a Traffic Control Plan, detailing the traffic control devices required and their placement.

To submit an on-line application:

www.dot.state.ak.us/permits/index.shtml

To submit an application in person contact:

Central Region
(Anchorage Area)
(907) 269-0700
1-800-770-5263
(907) 269-0828 (fax)

- 5.2 The Permittee shall obtain a Lane Closure Permit (LCP) from the Department for work within **thirty feet (30')** of the traveled way. The application for LCP shall include a Traffic Control Plan, detailing the traffic control devices required and their placement.
- 5.3 The Permittee is fully responsible for the costs of all traffic control, including, but not limited to, permit fees, traffic control plan designs, traffic control devices, flagging operations, detours, and/or pilot car operation.
- 5.4 The Permittee shall provide traffic control devices, conforming to the latest addition of the Manual on Uniform Traffic Control Devices published by the U.S. Department of Transportation and Alaska Traffic Manual Supplement while constructing the Facility, or thereafter performing routine maintenance.
- 5.5 All traffic control devices required by Lane Closure Permit, including signs, barricade, and flagmen, shall be in place prior to beginning work within the right of way.
- 5.6 The Permittee shall remove or cover all temporary traffic control devices as soon as practical when they are no longer needed or when work on the Facility is suspended for short periods of time.
- 5.7 The Permittee's construction and maintenance activities on the Facility shall not affect the normal vehicular or pedestrian traffic, or other normal use patterns, without an approved Lane Closure Permit.
- 5.8 The Permittee shall not park vehicles, equipment, or store materials on road or pathway surfaces at any time, unless specifically allowed by Lane Closure Permit.
- 5.9 The Permittee shall not store equipment or materials within **thirty feet (30')** of the edge of travel way when not in use, or when work on the Facility is not in progress.
- 5.10 The Permittee agrees to maintain a proper detour for affected pathways, and be responsible for all liability caused by the Detour.
- 5.11 The Permittee shall provide for the duration of construction adequate signing, barricades, and traffic control devices for the pathways.

- 5.12 The Permittee or the Permittee's contractor shall designate a Traffic Safety Supervisor who shall be responsible for the maintenance of traffic operations on a 24-hour basis. This individual shall have received formal work zone traffic control training or have had three years previous experience in supervising maintenance and protection of traffic through road construction work zones. The Department must be supplied with the name of this individual along with written verification of his/her credentials as well as a 24-hour telephone number where he/she can be reached.
- 5.13 The Permittee shall provide and maintain safe routes for pedestrians and bicyclists through or around traffic control zones at all times.
- 5.14 The Permittee shall stop equipment and vehicles at all points of intersection with the traveling public unless an approved Traffic Control Plan shows otherwise.
- 5.15 All illumination and signalization shall remain operational during the construction of the Facility.

6.0 EXCAVATION AND BACKFILL

- 6.1 The Permittee shall backfill and compact all trenches within road prisms and pathways in 6-inch lifts or as accepted by the Department of Transportation inspector. 6-inch lifts are required if no inspector is present. The backfill shall be of suitable non-frost susceptible, non-organic material (0-6% passing No. 200 sieve). All excavated non-acceptable material shall be removed from the State right-of-way or property by the Permittee.
- 6.2 The road prism is defined to include the finished roadway surface and underlying structural layers out to, and including, any unpaved shoulders, curbs, and attached pathways.

The Permittee shall backfill the vertical extent of the roadway prism with structural backfill to a limit defined by extending a one and one-half horizontal to one vertical (1 1/2:1) slope from the roadway prism limit (shoulder of the road or back of path as applicable) down to where the slope intercepts the bottom of the excavation. Backfill the remaining trench outside the prism with materials meeting the requirements of selected material, Type C, as defined by the latest edition of the Standard Specifications for Highway Construction.

- 6.3 The Permittee shall compact all trenches within or crossing road prisms and pathways at a minimum of 95% of the optimum density. All compaction tests shall be at the Permittee's expense. The Department's inspector shall determine the testing frequency. A copy of each test will be submitted to the Department.
- 6.4 The Permittee shall backfill all trenches, bore pits, and other excavations located outside road and pathway prisms with clean, non-organic, and compactable material meeting the requirements of Select Material, Type C, as defined in the Department's Standard Specifications for Highway Construction. Existing material is acceptable as backfill provided it meets the requirements of Select Material, Type C.

The Permittee shall remove material not suitable for use as backfill from the site, as determined by the Department. The Permittee shall replace unsuitable backfill material with imported material meeting the requirements of Select Material, Type C.

All backfill shall be compacted to existing undisturbed soil densities or better, and graded to blend with the existing ground surface. All costs associated with removal of unusable material and placement of import material is the responsibility of the Permittee.

- 6.5 The Permittee shall place the underground facility a minimum of 48-inches below the surface when in the State's road prism.

- 6.6 The Permittee shall place the underground facility a minimum of 48-inches below the bottom of the ditch, when in the ditch prism.
- 6.7 The Permittee shall place the facility a minimum of 36-inches below original ground when 10 feet outside the slope limits.
- 6.8 The Permittee shall provide lateral trench and bore pit support as necessary.
- 6.9 The Permittee shall place buried caution tape one foot directly above the Facility being installed when trenching or plowing.

7.0 PAVEMENT REPLACEMENT AND TRAFFIC MARKINGS

- 7.1 Pavement shall not be affected by the work covered under this Permit.

8.0 DRAINAGE

- 8.1 The Permittee shall be responsible for assuring that all water entering the Department's storm drain facility meets the minimum criteria for water quality standards as set forth in the Alaska Administrative Code (18 AAC 70.010-.110).
- 8.2 The Permittee shall maintain existing drainage patterns during construction of the Facility and restoration of the right of way unless otherwise agreed to by the Department.
- 8.3 The Permittee shall notify the Department of Transportation of drainage problems caused by the work under this Permit and will remedy the problem as directed by the Department of Transportation.
- 8.4 The Permittee shall replace all culverts damaged by work under this Permit with a C.M.P. of the same size, or 18-inch, whichever is greater. Culverts that are found undersized or damaged shall be cleaned of debris or replaced at the Permittee's expense.

9.0 RIGHT OF WAY PROTECTION, MAINTENANCE, AND RESTORATION

- 9.1 The Permittee shall cleanup within one day behind installation of the facility. The Permittee will not be allowed to trench or plow more than can be cleaned up the following day.
- 9.2 The Permittee or their contractor shall immediately repair any damage of existing utilities, storm drainage or other highway structures caused as a result of construction authorized by this permit.
- 9.3 Heavy tracked equipment operation will not be permitted on a paved roadway or shoulder, unless approved in writing by the Regional Utilities Engineer. If approved, planking or rubber tires shall be utilized between the vehicle tracks and the pavement. The Permittee shall repair damage to the pavement as a result of equipment operation as directed by the Department.
- 9.4 The Permittee or his contractor will be responsible for winter and spring maintenance of the road shoulders, ditch lines, backslopes, road surfaces, taxiways, and runways that have not been left in a neat and clean condition, satisfactory to the Maintenance Section of the Department of Transportation.
- 9.5 The Permittee shall dispose of trees, brush or other natural growth by mechanical chipping (6" x 4" x 1" maximum resultant size) or hauling away. Stumps and grubbing piles shall be loaded and hauled to a disposal site outside the Department's right of way. Trees left for the public shall be limbed and stacked in a location where loading does not interfere with the safe operation of the travel way.

- 9.6 Any Survey monument or monument accessory that will be disturbed or destroyed during construction of the Facility shall be referenced prior to beginning work, and restored or replaced by a Registered Land Surveyor licensed in accordance with AS 34.65.040. All monument records shall be reviewed by the Department prior to filing with the District Recorder.
- 9.7 Highway signs that are in conflict with construction shall be relocated on a temporary basis and reinstalled at the original location as soon as possible. Signs that are damaged during construction shall be replaced in kind to the Department's standards, and at no cost to the Department.
- 9.8 The Permittee shall replace all driveway/street/sidewalk/pathway intersections in kind.
- 9.9 The Permittee shall replace all sidewalks, curbs, and gutters to an existing undisturbed joint.
- 9.10 The Permittee shall provide street sweeping to keep free of loose material all paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where your operations have deposited loose material. Use a street sweeper that can collect materials rather than eject them on the shoulder of the road.
- 9.11 Upon completion of the work within the State right-of-way or State property, the Permittee shall remove all equipment, dispose of all waste material and shall leave the premises in a neat and clean condition satisfactory to the Department of Transportation.
- 9.12 The Permittee shall obtain locates for any existing traffic signals, traffic interconnect cables, street light facilities, or FAA cables prior to construction. Damages shall be repaired and restored to working order within eight hours at the Permittee's expense. Any splice must be located within a Type II Junction Box or as directed by the Department.
- 9.13 Guardrail that is removed or damaged during construction shall be replaced in accordance with Section 606 AKDOT&PF Standard Specifications dated 2004, and Standard Details G-04.10W, G-04.10S, G-00.02, G-10.01.

10.0 TOPSOIL AND SEEDING

- 10.1 The Permittee shall replace and restore all vegetation disturbed. Unless otherwise required, re-vegetation shall consist of establishing seeded grassed slopes over the disturbed ground. The Permittee shall use all means necessary to maintain and protect the disturbed slopes from erosion until such time as the vegetation is established.
- 10.2 The Permittee shall replace any topsoil lost as a result of construction under this permit.
- 10.3 The Permittee shall re-grade all areas disturbed by work under this permit to blend with the existing ground surface and re-seed after completing backfill of the Facility.
- 10.4 If re-seeding is not complete by August 15th, then re-shaping of all disturbed areas shall be completed by July 1st of the following year. The Permittee is responsible for all erosion control measures and cleaning of ditches and culverts.
- 10.5 The Permittee shall re-seed as per the Revegetative Guide for Alaska printed by the Division of Agriculture, Plant Materials Center.

11.0 EROSION SEDIMENT CONTROL

- 11.1 The Permittee shall comply with all regulations set forth by the Alaska Construction General Permit (ACGP) and/or Municipal Storm Sewer Sanitation System (MS4).
- 11.2 The Permittee and its contractors shall act as co-permittees in developing and implementing the Storm Water Pollution Prevention Plan (SWPPP) when the Permittee contracts work to other companies.
- 11.3 Utility permit projects requiring coverage under the ACGP shall submit all required information to the governing agency in accordance with ACGP section 2.0, 'Authorization under this General Permit'.
- 11.4 SWPPP must be site specific and demonstrate how the Permittee intends to comply with the requirements of ACGP.
- 11.5 The Permittee shall be responsible for all erosion control prior to slopes becoming stabilized.
- 11.6 The Permittee is responsible for installing and maintaining BMPs required by the APDES permit throughout the duration of the project.
- 11.7 Provide an Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) trained person, with the authority to direct all activities by the SWPPP, APDES permit or other permit conditions, during all construction and maintenance activities authorized by this permit that involve ground disturbing activities. Provide proof of current AK-CESCL certification upon request.

12.0 WARRANTY

- 12.1 Warrant and Warranty, for the purposes of this Permit, shall mean the Department's concurrence block authority on any warranty release issued by the Permittee. The Department's signatory authority is the Regional Utilities Engineer, phone: 269-0594.
- 12.2 The Permittee shall warrant the materials and workmanship of the road, and road right-of-way, to ensure completion of the construction, including the restoration of surfacing, slopes, slope treatment, drainage facilities, pathways, and right-of-way cleanup for the warranty period.
- 12.3 The Department will notify the Permittee of any surface deformity. The Permittee shall prepare a corrective action plan for review and approval by the Department. The corrective action plan shall include:
- A. A methodology to determine if the pavement surface deformation is due to subsurface forces, such as subsidence or drainage, and;
 - B. A proposal for correcting the surface variation.
- 12.4 The Permittee shall remedy promptly, without cost to the Department, any and all defects in materials and workmanship resulting from defective materials and workmanship. If the defect, in the opinion of the Department, is of such a nature as to demand immediate repair, the Department shall have the right to take corrective action and the cost thereof shall be borne by the Permittee.
- 12.5 The Permittee or his designee and the Department shall perform construction inspection of the road. The Permittee or his designee shall handle any coordination with respect to inspection activities involving both the Department and Permittee.
- 12.6 Upon completion of the project and restoration of the Department's right of way, the Permittee shall request an inspection by the Department for determination of acceptance.

12.7 The Warranty period shall mean a period of two (2) years from the acceptance of the road. The Warranty shall remain in effect until final inspection and acceptance by the Department.

In consideration of the benefits accruing to the Permittee by reasons of the foregoing agreement, this permit is hereby accepted by the Permittee and the Permittee hereby agrees to comply with all of the terms, provisions, conditions and stipulations therein contained.

The State of Alaska, acting by and through its Department of Transportation and Public Facilities has caused this Utility Permit to be executed on:

Dated this 18 day of April, 20 22

Dated this 27 day of July, 20 22

THE COMPANY OR PERMITTEE

Anchorage Water and Wastewater Utility
Name of Company

By: [Signature]

Title: PROJECT MANAGER

Attest: Ali Turker

Title: Private Development Coordinator

ACKNOWLEDGEMENT OF COMPANY OR PERMITTEE

STATE OF ALASKA
3RD JUDICIAL DISTRICT

BE IT REMEMBERED that on this 18th day of April, 20 22, before me, the undersigned, a Notary Public of the State of Alaska, personally appeared

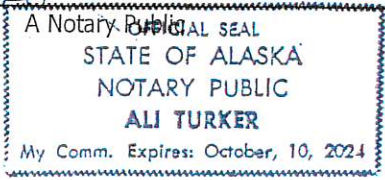
Willie Omalley

and both to me personally known and known to me to be the identical individuals named in and who executed the foregoing permit, and acknowledged the said instrument to be the free and voluntary act and deed of the above named company for the uses and purposes therein expressed and on oath stated that they were authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of my Office the day and year first above written.

My Commission Expires: 10/10/2024

Ali Turker



STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

CENTRAL REGION

By: Cynthia Ferguson
FOR

Title: Utilities Engineer

ACKNOWLEDGEMENT OF DEPARTMENT

STATE OF ALASKA
3RD JUDICIAL DISTRICT

BE IT REMEMBERED that on this 27 day of July, 20 22, before me, the undersigned, a Notary Public of the State of Alaska, personally appeared

Cynthia Ferguson
Utilities Engineer

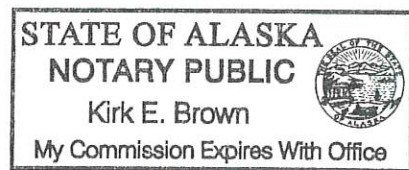
of the Department of Transportation and Public Facilities known to me to be the identical individual who executed the foregoing Permit, and he acknowledged to me that he executed the same for and on behalf of the State of Alaska, Department of Transportation and Public Facilities with full authority so to do, and for the uses and purposes therein expressed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of my Office the day and year first above written.

My Commission Expires: with office

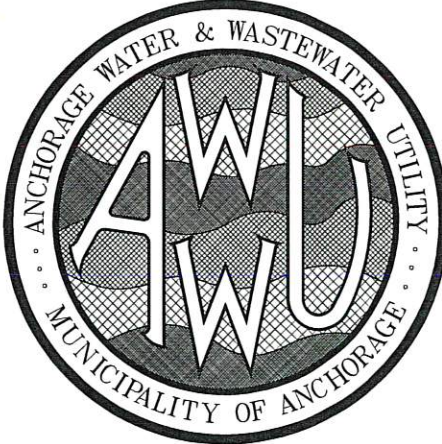
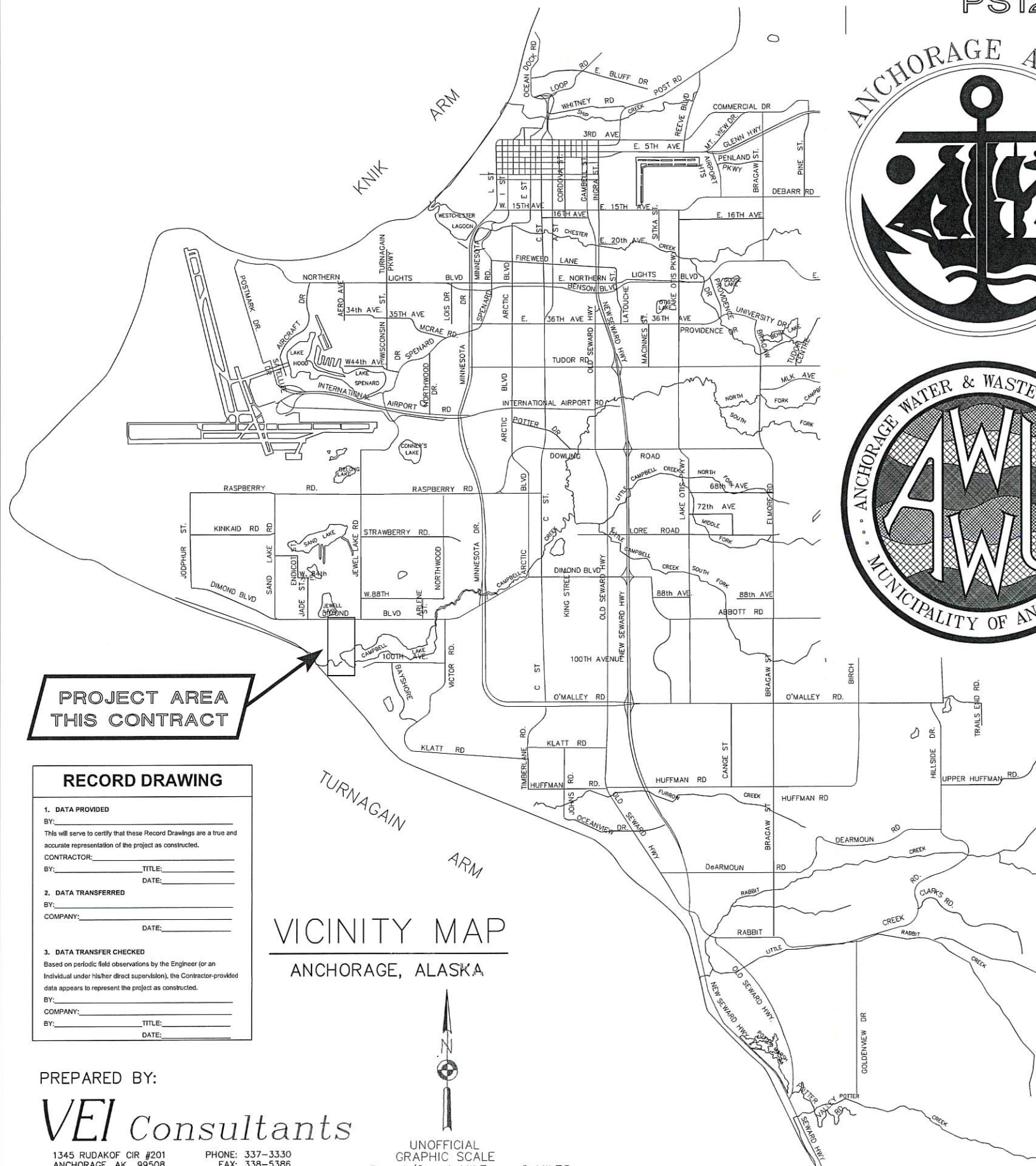
[Signature]

A Notary Public



PS12 FORCE MAIN/GRAVITY JUNCTION REHAB
 SCHEDULES A, B, C, AND D
 AWWU PROJECT ID. NO. WW.H7713
 10/29/2021

AWWU PLAN SET
 NO. 10794



SCHEDULE A
 PS12 REHABILITATION

SHEET INDEX		
SHEET No.	INDEX No.	SUBJECT
GENERAL		
1	G1	COVER SHEET
2	G2	NOTES, ABBREVIATIONS & LEGEND
3	G3	KEY MAPS
4	G4	CONSTRUCTION TRAFFIC ROUTES AND SURVEY CONTROL
CIVIL		
5	C1.0	SITE PLAN
6	C2.0	WATER SERVICE
7	C3.0	TURNAGAIN TRUNK ACCESS
8	C4.0	PUMP STATION VEHICLE ACCESS GATES
9	C5.0	PUMP STATION DRIVE GATE DETAIL
PROCESS		
10	P1.0	PUMP STATION P&ID
11	P2.0	PUMP STATION WORK OVERVIEW PLAN VIEW
12	P3.0	PUMP STATION WORK OVERVIEW SECTION VIEW
13	P4.0	CONTROL LEVEL PLAN VIEW
14	P5.0	MOTOR ROOM PLAN VIEW
15	P6.0	MOTOR ROOM SECTION VIEW
16	P7.0	PUMP ROOM DEMOLITION PLAN VIEW
17	P8.0	PUMP ROOM DEMOLITION SECTION VIEW
18	P9.0	PUMP ROOM PLAN VIEW
19	P10.0	PUMP ROOM PIPING - PUMPS 1 & 4 SECTION VIEW
20	P11.0	PUMP ROOM PIPING - PUMPS 2 & 3 SECTION VIEW
STRUCTURAL		
21	D1.0	EXISTING WALL - DEMO PLAN AND SECTION
22	S1.0	GENERAL NOTES
23	S2.0	BASEMENT PUMP ROOM FLOOR PLAN
24	S3.0	CONTROL ROOM FLOOR PLAN
25	S4.0	CONTROL ROOM - BUILDING SECTION
26	S6.0	WALL SECTIONS
27	S10.0	PUMP SECTION AND DETAILS
28	S10.1	THRUST BLOCK SECTIONS AND DETAILS
29	S11.0	WET WELL SLUICE GATE SECTIONS AND DETAILS
30	S18.0	WET PIT 1 AND 2 PLATFORM FRAMING PLAN
31	S18.1	INFLUENT MANHOLE PLATFORM FRAMING PLAN
32	S18.3	PLATFORM FRAMING - SECTIONS
33	S18.4	GUARDRAIL FRAMING ELEVATIONS AND DETAILS
34	S18.5	PLATFORM FRAMING DETAILS
35	S20.0	PUMP STATION WET WELL LADDER PLAN AND ELEVATIONS
MECHANICAL		
36	M0.1	MECHANICAL SPECIFICATIONS, ABBREVIATIONS, AND SYMBOL LEGEND
37	M0.2	MECHANICAL SCHEDULES
38	M1.0	MECHANICAL DEMOLITION - MOTOR LEVEL
39	M1.1	MECHANICAL DEMOLITION DETAILS
40	M2.0	MECHANICAL PLAN - MOTOR LEVEL
41	M2.1	MECHANICAL PLAN - PUMP LEVEL
42	M3.0	MECHANICAL DETAILS
ELECTRICAL		
43	E0.1	ELECTRICAL LEGEND, ABBREVIATIONS, AND SCHEDULES
44	E1.0	POWER ONE-LINE DIAGRAM - EXISTING AND DEMOLITION
45	E1.1	POWER ONE-LINE DIAGRAM - NEW WORK
46	E1.2	ELECTRICAL SCHEDULES AND DETAILS
47	E2.0	CONTROL BLOCK DIAGRAM - DEMOLITION 1 OF 3
48	E2.1	CONTROL BLOCK DIAGRAM - DEMOLITION 2 OF 3
49	E2.2	CONTROL BLOCK DIAGRAM - DEMOLITION 3 OF 3
50	E2.3	CONTROL BLOCK DIAGRAM - NEW WORK 1 OF 3
51	E2.4	CONTROL BLOCK DIAGRAM - NEW WORK 2 OF 3
52	E2.5	CONTROL BLOCK DIAGRAM - NEW WORK 3 OF 3
53	E3.0	ELECTRICAL SITE PLAN
54	E3.1	ELECTRICAL DEMOLITION PLAN - CONTROL ROOM
55	E3.2	ELECTRICAL DEMOLITION PLANS AND SECTIONS
56	E3.3	ELECTRICAL NEW WORK PLAN - CONTROL ROOM
57	E3.4	ELECTRICAL NEW WORK PLANS AND SECTIONS
58	E4.0	INSTRUMENT CONNECTION SCHEDULE
59	E4.1	INSTRUMENT CONNECTION SCHEDULE
60	E4.2	ELECTRICAL SCHEMATICS
61	E5.0	PLC PANEL LAYOUT AND FUNCTIONAL NARRATIVE
62	E5.1	PLC BLOCK DIAGRAM
63	E5.2	PLC POWER DISTRIBUTION
64	E5.3	PLC POWER DISTRIBUTION
65	E5.4	PLC DISCRETE INPUTS
66	E5.5	PLC DISCRETE INPUTS
67	E5.6	PLC DISCRETE INPUTS
68	E5.7	PLC DISCRETE INPUTS
69	E5.8	PLC DISCRETE OUTPUTS
70	E5.9	PLC ANALOG INPUTS
71	E5.10	PLC ANALOG INPUTS
72	E5.11	PLC ANALOG INPUTS
73	E5.12	PLC ANALOG INPUTS
74	E5.13	PLC RTD INPUTS
LANDSCAPING		
75	L1.0	LANDSCAPE PLAN
76	L2.0	LANDSCAPE DETAILS

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 Date: 10/29/2021
 Page: 1 of 12

PROJECT AREA
 THIS CONTRACT

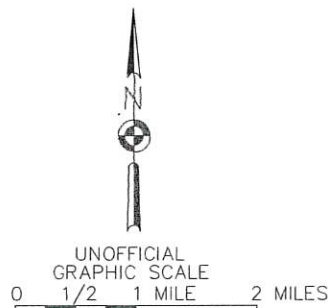
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 BY: _____ TITLE: _____
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VICINITY MAP
 ANCHORAGE, ALASKA



PREPARED BY:
VEI Consultants
 1345 RUDAKOF CIR #201 ANCHORAGE, AK 99508 LICENSE #AEC368
 PHONE: 337-3330 FAX: 338-5386

PS12 FORCE MAIN/GRAVITY JUNCTION REHAB
 SCHEDULES A, B, C, AND D

AWWU PROJECT ID. NO. WW.H7713

CONTINUED ON SHEET G2

Permit No. 1-133700-22-067
 Latitude: 61.1373
 Longitude: -149.9583
 Date: 10/29/2021
 Page: 2 of 12

AWWU PLAN SET
 NO. 10794

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SHEET INDEX CONTINUED FROM G1

SHEET INDEX		
SHEET No.	INDEX No.	SUBJECT
78	U1	CULVERT DEMOLITION
79	U2	FORCE MAIN UNDERCROSSING PLAN AND PROFILE
80	U3	STREAM RESTORATION
81	U4	MANHOLE
82	U5	CONNECTION DETAILS
83	U6	DETAILS
84	U8	CATHODIC PROTECTION DETAILS
85	CC1	INDEX MAP AND COORDINATE TABLES
87	CC3	FM DRIVE 9+30 TO 15+00
88	CC4	FM DRIVE 15+00 TO 19+50
90	CC6	STRUCTURAL SECTIONS
91	CC7	NORTH POINT DRIVE ACCESS GATE PLAN & SECTION
92	R1	FORCE MAIN REHABILITATION KEY MAP
93	R2	MANHOLE 78A STA 14+07, 5 FT LEFT SITE PLAN
94	R3	MANHOLE 78A STA 14+07, 5 FT LEFT SECTION
95	R4	MANHOLE 79A STA 24+80, 5 FT LEFT SITE PLAN
96	R5	MANHOLE 79A STA 24+80, 5 FT LEFT SECTION
97	R6	DIG UP REPAIRS STA 32+39 SITE PLAN
98	R7	DIG UP REPAIRS STA 32+39 SECTION VIEWS
99	R8	CIPP STA 32+34 TO 35+68 PLAN AND PROFILE
100	R9	MH 83, JUNCTION MANHOLE STA 36+00 PLAN + SECTION
101	R10	SLIPLINE SITE PLAN
102	R11	SLIPLINE STA 36+00 TO 36+95 PLAN AND PROFILE
103	R12	MANHOLE 10 RECONSTRUCTION STA 36+96.97 PLAN AND SECTION
104	R13	FORCE MAIN REHABILITATION DETAILS

ABBREVIATIONS

- ACP = ASBESTOS CONCRETE PIPE
- ACPV = AC PAVEMENT
- APPROX. = APPROXIMATE
- ATI = AT TIME OF INVESTIGATION
- B = BORING
- BM = BENCH MARK
- B.O.C. = BACK OF CURB
- B.O.P. = BEGINNING OF PROFILE
- B.O.P. = BOTTOM OF PIPE
- C&G = CURB AND GUTTER
- CI = CAST IRON
- CL = CENTERLINE
- CONT = CONTINUOUS
- CMP = CORRUGATED METAL PIPE
- C.O. = CLEAN OUT
- CPEP = CORRUGATED POLYETHYLENE PIPE
- D = DRAIN
- DI = DUCTILE IRON
- DIA = DIAMETER
- DIP = DI PIPE
- D&R = DISCONNECT & RECONNECT
- E = ELECTRICAL
- EAST, EASTING
- ELEV = ELEVATION
- E.O.P. = END OF PROFILE
- E.O.P. = END OF PAVEMENT
- E.O.S. = END OF SHOULDER
- ESMT = EASEMENT
- EXC = EXCAVATION
- FD = FOUNDATION DRAIN
- F.G. = FINISHED GRADE (ELEV.)
- F.L. = FLOW LINE (ELEV.)
- F&I = FURNISH AND INSTALL
- GAAB = GREATER ANCHORAGE AREA BOROUGH
- GALV. = GALVANIZED
- GB = GRADE BREAK
- H. HORZ = HORIZONTAL
- HDPE = HIGH DENSITY POLYETHYLENE
- HT = HEIGHT
- I = INCLUDED ANGLE
- IE = INVERT ELEV.
- INV. = INVERT
- K = VERTICAL CURVE INDEX
- L = LENGTH
- LF = LINEAR FEET
- LONG. = LONGITUDINAL
- LAT. = LATITUDE
- LT. = LEFT
- MAX = MAXIMUM
- M.A.S.S. = MOA STANDARD SPECIFICATIONS
- ME = MATCH EXISTING
- MFR = MANUFACTURER
- MH = MANHOLE
- MIN = MINIMUM
- MOA = MUNICIPALITY OF ANCHORAGE
- N = NORTHING, NORTH
- NFS = NON-FROST SUSCEPTIBLE
- NGS = NATIONAL GEODETIC SURVEY
- N.I.C. = NOT IN CONTRACT
- N.T.S. = NOT TO SCALE
- O.C. = ON CENTER
- OF = OUTFALL
- OG = ORIGINAL GROUND (ELEV.)
- OSHA = OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
- P.C. = POINT OF CURVATURE
- PCC = PORTLAND CEMENT CONCRETE
- POMP = PRE-COATED CMP
- P.I. = POINT OF INTERSECTION
- PL = PROPERTY LINE
- PP = POWER POLE
- P.T. = POINT OF TANGENCY
- R = RADIUS (LENGTH)
- RC = REINFORCED CONCRETE
- R.P. = RADIUS POINT
- RT. = RIGHT
- S = SEWER, SOUTH
- SD = STORM DRAIN
- S.I. = STREET INTERSECTION
- SHLDR = SHOULDER
- S.S. = STAINLESS STEEL
- SS = SANITARY SEWER
- STA = STATION
- COMH = CLEANOUT MANHOLE
- STD = STANDARD
- T = TANGENT (LENGTH)
- TBC = TOP BACK OF CURB
- TBM = TEMPORARY BENCHMARK
- T.O.C. = TOP OF CONCRETE
- TYP = TYPICAL
- U/G = UNDER GROUND
- UON = UNLESS OTHERWISE NOTED
- V = VENT
- V. VERT = VERTICAL
- V.C. = VERTICAL CURVE
- V.P.C. = VERTICAL P.C.
- V.P.I. = VERTICAL P.I.
- V.P.T. = VERTICAL P.T.
- W = WATER, WEST
- WWF = WELDED WIRE FABRIC
- WT = WATER TABLE
- > = GREATER THAN
- < = LESS THAN
- ≥ = GREATER THAN OR EQUAL TO
- ≤ = LESS THAN OR EQUAL TO

LEGEND

SYMBOL		PLAN LEGEND
EXISTING (E)	PROPOSED (P)	
●	●	IRON PIN (REBAR) / IRON PIPE
⊙	⊙	BRASS CAP MONU./BLM CORNER
▲	▲	PROJECT CONTROL POINT
⊕	⊕	BENCHMARK
○	○	AL CAP
—SD—	—SD—	STORM DRAIN LINE
—S—	—S—	SANITARY SEWER LINE
—W—	—W—	WATER LINE
—G—	—G—	GAS LINE
—UG/E—	—UG/E—	UNDERGROUND ELECTRIC LINE
—OH/E—	—OH/E—	OVERHEAD ELECTRIC LINE
—UG/T—	—UG/T—	UNDERGROUND TELEPHONE LINE
—OH/T—	—OH/T—	OVERHEAD TELEPHONE LINE
—UG/C—	—UG/C—	UNDERGROUND CABLE TV
—OH/C—	—OH/C—	OVERHEAD CABLE TV LINE
—UG/FO—	—UG/FO—	UNDERGROUND FIBER OPTIC
⊙	⊙	STORM DRAIN MANHOLE
⊕	⊕	CATCH BASIN MANHOLE
□	□	CATCH BASIN
▨	▨	INSULATION
○	●	SANITARY SEWER MANHOLE
▷	▷	SEWER SERVICE CONNECTION
⊕c.o.	⊕c.o.	SANITARY SEWER CLEANOUT
⊕	⊕	WATER KEY BOX/VALVE MARKER
⊕	⊕	WATER VALVE BOX
⊕	⊕	FIRE HYDRANT
⊕	⊕	GAS METER
⊕	⊕	UNDERGROUND ELECTRIC PEDESTAL
⊕	⊕	ELECTRICAL HANHOLE / J- BOX
⊕	⊕	LUMINAIRE
⊕	⊕	UTILITY POLE
⊕	⊕	GUY POLE
⊕	⊕	GUY ANCHOR
⊕	⊕	UNDERGROUND TELE. PEDESTAL
⊕	⊕	UNDERGROUND TV CABLE PEDESTAL
⊕	⊕	STREET SIGN (1S, 2S)
▨	▨	PAVEMENT REMOVAL
▨	▨	HOUSE OR STRUCTURE
▨	▨	FLOW DIRECTION
▨	▨	PROPERTY LINE
▨	▨	CENTERLINE
▨	▨	EASEMENT LINE
▨	▨	WETLAND APPROXIMATE LIMITS
⊕	⊕	DETAIL

SYMBOL		PROFILE LEGEND
EXISTING (E)	PROPOSED (P)	
---	---	CENTER LINE (R.O.W.)
---	---	WEST OR NORTH PROPERTY LINE
---	---	EAST OR SOUTH PROPERTY LINE
---	---	GRADE OF PAVEMENT AT G
---	---	EXISTING GROUND OVER PIPE
---	---	PIPE
---	---	PIPE
---	---	SEWER MANHOLE
---	---	STORM DRAIN PIPE
---	---	WATER LEVEL
---	---	UNDERGROUND TELEPHONE
---	---	UNDERGROUND ELECTRIC
---	---	UNDERGROUND GAS
---	---	OVERHEAD UTILITY LINE
---	---	SOILS CLASSIFICATION & % PASSING 200
---	---	INSULATION
---	---	CONCRETE
---	---	GRAVEL
---	---	COMPACTED SOIL
---	---	NATURAL SOIL
---	---	METAL GRATING

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE AS SPECIFIED IN THE MOST CURRENT EDITION OF THE MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS FOR STREETS-DRAINAGE-UTILITIES-PARKS (MASS), THE AWWU DESIGN AND CONSTRUCTION PRACTICES MANUAL, AND THE SPECIAL PROVISIONS. WORK IN DOT MANAGED ROW SHALL COMPLY WITH APPLICABLE DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (SSHC) AND DOT UTILITY PERMIT SPECIAL PROVISIONS.
- MAINTAIN A MINIMUM OF TEN (10) FEET HORIZONTAL SEPARATION BETWEEN WATER AND SANITARY SEWER MAINS AND SERVICES. A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES SHALL BE MAINTAINED AT ALL WATER/SEWER CROSSINGS.
- MAINTAIN A MINIMUM OF 36-INCHES OF VERTICAL SEPARATION BETWEEN ANY STORM SEWER (STORM DRAIN OR FOOTING DRAIN) AND WATERLINE (MAINS OR SERVICES) OR SANITARY SEWER (MAINS OR SERVICES). IF 36-INCHES CANNOT BE MAINTAINED, PROVIDE A MINIMUM OF 4-INCH THICK INSULATION.
- ALL WATER/SEWER PIPE INSULATION SHALL BE RIGID BOARD, HIGH DENSITY EXTRUDED POLYSTYRENE, MIN. 60 P.S.I., FOR UNDERGROUND INSTALLATIONS EQUIVALENT TO R-20 PER FOUR (4) INCH THICK INSULATION.
- CONTRACTOR SHALL VERIFY AND RECORD THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED IN THE FIELD AND RECORD ANY CHANGES ON THE CONTRACTOR RECORD DRAWINGS.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED PROPERTY, INCLUDING DRAINAGE SWALES, DISTURBED BY CONTRACT ACTIVITIES TO PRECONSTRUCTION CONDITION.
- IN CASE OF CONFLICT BETWEEN STATIONING LOCATION OF PIPE OR FITTINGS, USE DIMENSIONED LOCATIONS RELATIVE TO THE CENTERLINE OR PROPERTY LINE, THE DIMENSIONED LOCATIONS SHALL GOVERN.
- THE CONTRACTOR SHALL RECORD SURVEY NOTES FOR SUBMITTAL WITH RECORD DRAWING PLANS PRIOR TO CONTRACT FINAL PAYMENT.
- CONTRACTOR SHALL FIELD INSTALL "MEG-A-LUG" JOINT RESTRAINT ON ALL MECHANICAL JOINTS.
- CONTRACTOR SHALL USE DUCTILE IRON PIPE (DIP) LONG SOLID SLEEVES WITH RESTRAINED JOINTS TO FACILITATE CONNECTING DIP TO DIP OF SAME SIZE.
- FOR BURIED PIPE, NON-TIGHTLY BONDED COATED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN 8-MILS OF POLYETHYLENE WRAP. AS PER MASS SECTION 50.02 "POLYETHYLENE ENCASEMENT" POLYETHYLENE ENCASEMENT IS TO INCLUDE A VIDEO FILM SYSTEM INCORPORATING CORROSION CONTROL ADDITIVES AND MIC CONTROL ADDITIVES AS PROVIDED BY US PIPE OR APPROVED EQUAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AS NECESSARY TO COMPLY WITH FEDERAL, STATE, AND MUNICIPAL LAWS THAT PROHIBIT UNPERMITTED DISCHARGE OF POLLUTANTS, INCLUDING SEDIMENTS, THAT ARE A RESULT OF EROSION AND OTHER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONDUCT ALL WORK SO SEDIMENT IS NOT TRANSPORTED ONTO THE ROADWAY OR ADJACENT PROPERTY. AT A MINIMUM, THE CONTRACTOR SHALL SWEEP UP ANY SEDIMENT TRACKED ONTO PAVED SURFACES IN PUBLIC RIGHT-OF-WAY WITHIN 24 HOURS OF THE TRACKING TO MINIMIZE THE WASH-OFF OF SEDIMENT INTO THE STORM DRAINS OR WATERWAYS.
- STATIONING SHALL BE CENTERLINE OF DUAL FORCE MAINS, UNLESS NOTED OTHERWISE.

SEWER NOTES

- EXISTING CUSTOMERS SHALL BE NOTIFIED SEVENTY-TWO (72) HOURS IN ADVANCE OF SANITARY SEWER SERVICE INTERRUPTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SANITARY SEWER SERVICE TO THE EXISTING CUSTOMERS IF DEEMED NECESSARY BY THE ENGINEER. (TEMPORARY SEWER SERVICE NEEDS AWWU REVIEW AND APPROVAL PRIOR TO CONSTRUCTION)
- ALL MANHOLES SHALL HAVE A MINIMUM OF ONE SIX (6") INCH GRADE RING. MAXIMUM GRADE RING ADJUSTMENT SHALL NOT EXCEED EIGHTEEN (18") INCHES.
- ALL BEDDING SHALL BE CLASS "E" FOR HDPE AND TYPE II-A FOR DUCTILE IRON PIPE
- SEWER FORCE MAIN, SERVICE TRENCHES AND BEDDING SHALL BE COMPACTED TO MIN. OF 95% OF MAXIMUM DENSITY. WITHIN DOT MANAGED ROW MIN. OF 98% OF MAXIMUM DENSITY.
- THE CONTRACTOR SHALL RELOCATE ANY SEWER SERVICE CONNECTIONS INSTALLED WITH LESS THAN MINIMUM STANDARD MEASURED DISTANCES PRIOR TO FINAL ACCEPTANCE BY AWWU.
- EXISTING VAULTS AND MANHOLES LOCATED ALONG THE FORCE MAINS ARE GENERALLY FULL OF GROUNDWATER AND WILL HAVE TO BE PUMPED DOWN TO ALLOW ACCESS.
- HDPE PIPING MATERIAL - HDPE PIPING MATERIAL SHALL CONFORM TO MASS SECTION 50.02 FURNISH AND INSTALL PIPE, ARTICLE 2.3 MATERIAL, SUB-ARTICLE F, HIGH DENSITY POLYETHYLENE PIPE. HDPE PIPE, TUBING, AND FITTINGS SHALL CONFORM TO ALL APPLICABLE PROVISIONS AND REQUIREMENTS OF THE LATEST REVISION OF AWWA C901 AND AWWA C906 AND, BY INCLUSION, ALL APPROPRIATE STANDARDS REFERENCED THEREIN. ALL PIPE AND FITTINGS 2" AND LARGER SHALL BE MANUFACTURED TO IRON PIPE SIZE EQUIVALENT OUTSIDE DIAMETER (IPS). ALL HDPE SHALL BE SDR11 AND HAVE AN OPERATING PRESSURE RATING OF 200 PSI. HYDROSTATIC PRESSURE TESTING WILL BE PERFORMED AT 200 PSI.
- HDPE PIPING MATERIAL - HDPE FLANGE CONNECTIONS SHALL BE ONE-PIECE, MOLDED POLYETHYLENE ADAPTERS WITH STAINLESS STEEL BACKING RINGS. BACKING RINGS SHALL BE TYPE 316 STAINLESS STEEL. FLANGE CONNECTIONS SHALL HAVE A MINIMUM PRESSURE RATING EQUAL TO OR GREATER THAN THAT OF THE HDPE PIPING. NUTS, BOLTS, AND WASHERS SHALL BE STAINLESS STEEL, TYPE 316. RUBBER GASKETS FOR FLANGE CONNECTIONS SHALL BE NSF STANDARD 61 CERTIFIED FOR USE IN POTABLE WATER SYSTEMS. BACKING RINGS AND HARDWARE SHALL BE TAPE COATED WITH DENSO TAPE OR APPROVED EQUAL PRIME SURFACES WITH DENSO PASTE OR APPROVED EQUAL.

SEWER NOTES (CONTINUED)

- HDPE PIPING INSTALLATION - ALL HDPE FORCE MAIN PIPING AND FITTINGS SHALL BE BUTT-FUSED IN ACCORDANCE WITH ASTM D2657. THE INDIVIDUAL WHO PERFORMS THE BUTT-FUSION SHALL HAVE WRITTEN CERTIFICATION FROM AN HDPE PIPE MANUFACTURER STATING HE/SHE HAS SUCCESSFULLY COMPLETED AN 8-HOUR (MINIMUM) CERTIFICATION CLASS ON BUTT-FUSION TECHNIQUES AND PROCEDURES. IN ADDITION, THIS INDIVIDUAL SHALL HAVE FUSED A COMBINED TOTAL OF MORE THAN 5,000 FEET OF HDPE PIPING IN DIAMETERS 4-INCHES AND LARGER.
- HDPE PIPING INSTALLATION - A MAXIMUM OF THREE (3) JOINTS SELECTED AT RANDOM BY AWWU MAY BE TESTED FOR TENSILE STRENGTH USING A MCLEROY IN-FIELD TENSILE TESTER AS A QUALITY CONTROL MEASURE. SPECIMENS TO BE TESTED SHALL BE OBTAINED BY CUTTING THE FORCE MAIN PIPING AT LEAST 12-INCHES ON EACH SIDE OF A FIELD-MADE JOINT. CONTRACTOR SHALL THEN REJOIN THE ENDS OF THE PIPING AND WORK MAY PROCEED. COSTS FOR REMOVAL AND REPAIR OF BUTT-FUSED JOINTS SHALL BE BORNE BY THE CONTRACTOR. ALL LAB COSTS ASSOCIATED WITH DESTRUCTIVE TESTING OF BUTT-FUSED JOINTS WILL BE BORNE BY AWWU.
- HDPE PIPING INSTALLATION - THE CONTRACTOR SHALL ENSURE THAT EACH JOINT IS FUSED AT THE TEMPERATURE AND PRESSURE RECOMMENDED BY THE PIPE MANUFACTURER IN ORDER TO ACHIEVE THE MAXIMUM PRESSURE RATING FOR THAT JOINT. ALL FUSED JOINTS FOR HDPE PIPING AND FABRICATED FITTINGS SHALL BE DOCUMENTED BY A COMPUTER DATA LOGGER THAT RECORDS PRESSURE AND TEMPERATURE APPLIED AT EACH FUSED JOINT, ALONG WITH THE DATE AND TIME THE JOINT WAS FUSED. COMPUTER PRINTOUTS, ELECTRONIC DATA, AND THE PROJECT STATION FOR EACH FIELD FUSED JOINT SHALL BE SUBMITTED TO AWWU.
- HDPE PIPING INSTALLATION - THE HANDLING OF THE JOINED PIPELINE SHALL BE IN SUCH A MANNER THAT THE PIPE IS NOT DAMAGED. ROPES, FABRIC, OR RUBBER-PROTECTED SLINGS, OR STRAPS SHALL BE USED WHEN HANDLING PIPES, CHAINS, CABLES, OR HOOKS INSERTED INTO THE PIPE ENDS SHALL NOT BE ALLOWED. TWO SLINGS SPREAD APART SHALL BE USED FOR LIFTING EACH LENGTH OF PIPE. SLINGS FOR HANDLING THE PIPELINE SHALL NOT BE POSITIONED AT BUTT-FUSED JOINTS.

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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2. DATA TRANSFERRED BY: _____
 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
 DATA TRANSFER CHECKED BY: _____
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 BY: _____ TITLE: _____
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 CE-5107
 SEAL

ANCHORAGE WATER & WASTEWATER UTILITY
 AWWU
 MUNICIPALITY OF ANCHORAGE

MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY

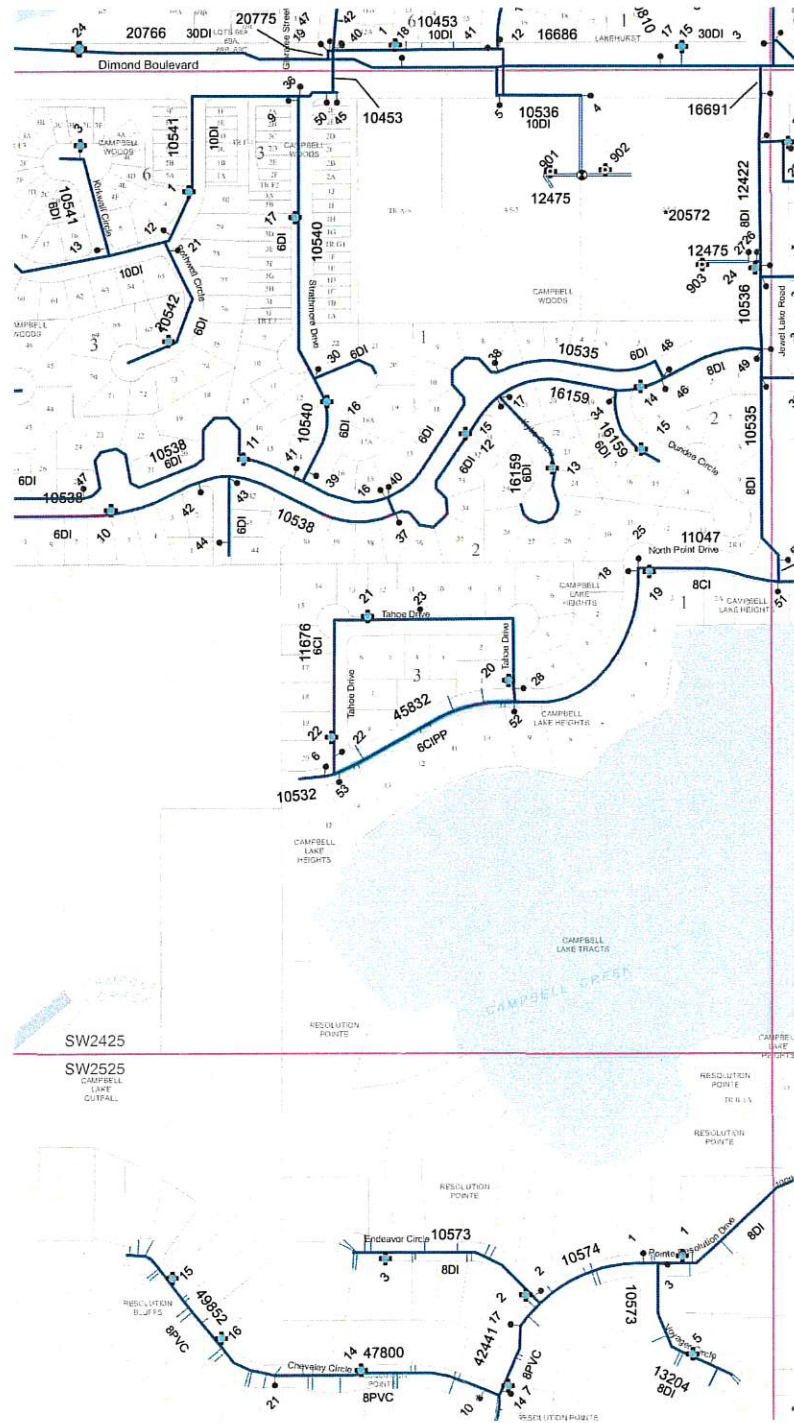
PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

NOTES, ABBREVIATIONS & LEGEND

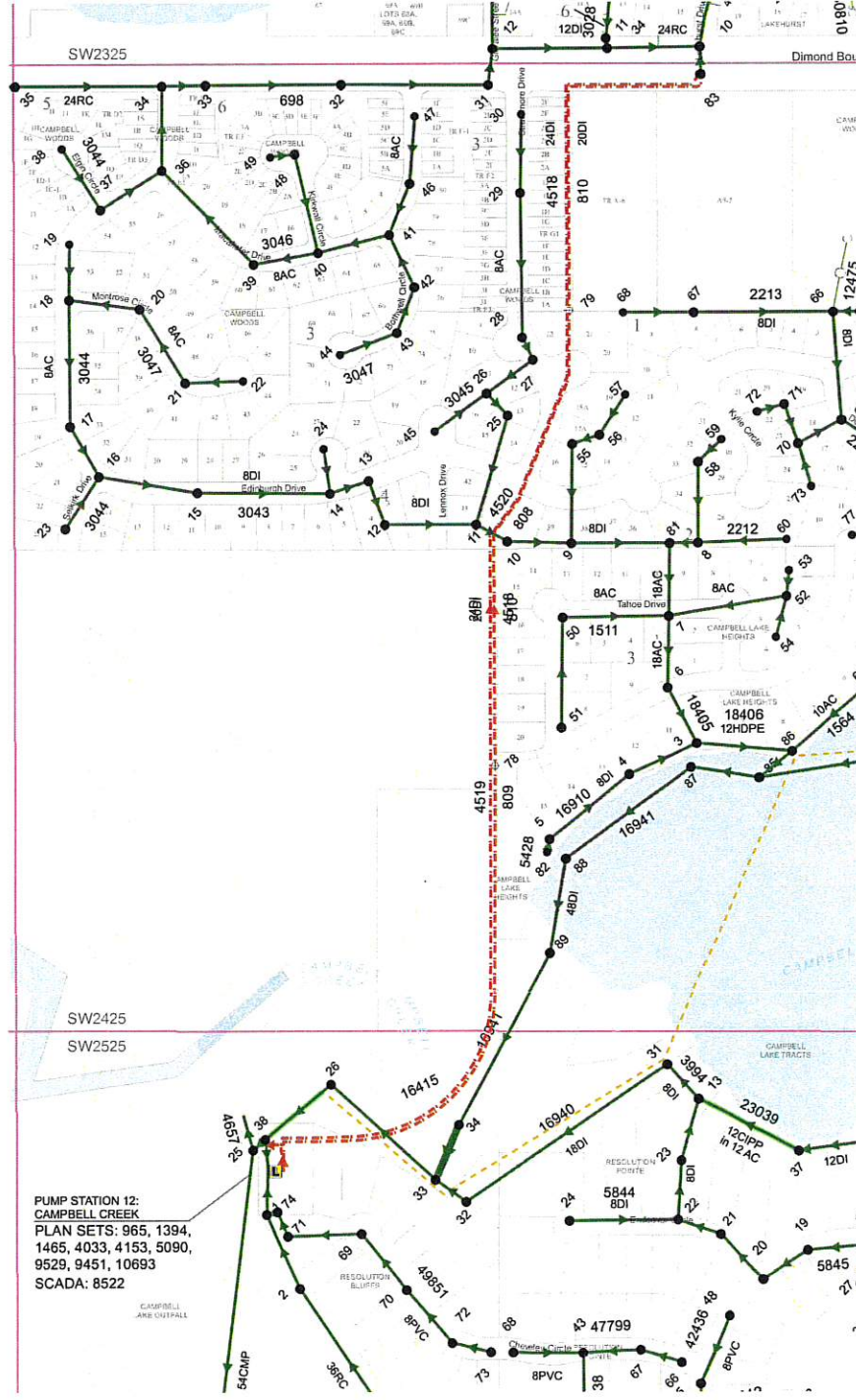
HORIZ SCALE: NA
 VERT SCALE: NA
 DATE: 10/29/2021
 GRID: SW 2525
 SHEET 2 of 104

CALL BEFORE YOU DIG
 The Contractor shall notify all area utility companies prior to commencement of excavation. The following is a partial list:
 LOCATE CALL CENTER OF ALASKA 278-3121
 (Includes ATU, AWWU, GEA, ENG, Butler Aviation/Towers, Prime Cable, MLP, Traffic Signals, MOA Storm/Streets)
 STATE STORM/STREET LIGHTS 333-2411
 MILITARY PETROLEUM LINES

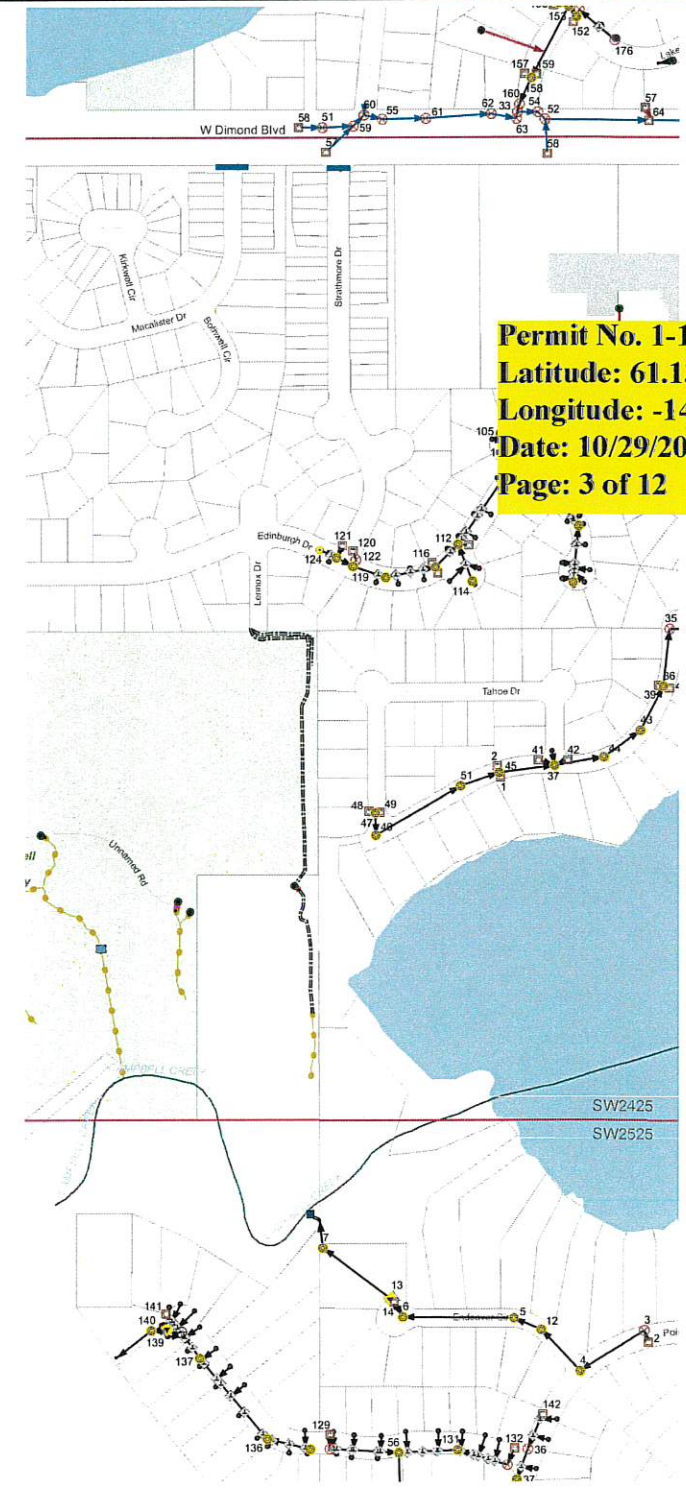
Permit No. 1-133700-22-067
Latitude: 61.1373
Longitude: -149.9583
Date: 10/29/2021
Page: 3 of 12



WATER KEY MAP
N.T.S.



SEWER KEY MAP
N.T.S.



STORM KEY MAP
N.T.S.

CALL BEFORE YOU DIG
The Contractor shall notify all area utility companies prior to commencement of excavation. The following is a partial list:
LOCATE CALL CENTER of ALASKA 278-3121
(includes ATU, AWWU, GEA, ENG, Butler Aviation/Tesoro, Prime Cable, MLP, Traffic Signals, MOA Storm/Streets)
STATE STORM/STREET LIGHTS 333-2411
MILITARY PETROLEUM LINES

RECORD DRAWING Note: To be filled out on original drawings upon project completion.
1. DATA PROVIDED BY: _____
This shall serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.
CONTRACTOR: _____
BY: _____ TITLE: _____
DATE: _____
2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____
3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

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1345 RUDAKOF CIR #201
ANCHORAGE, AK 99508
LICENSE #AEC368
CONSULTANT



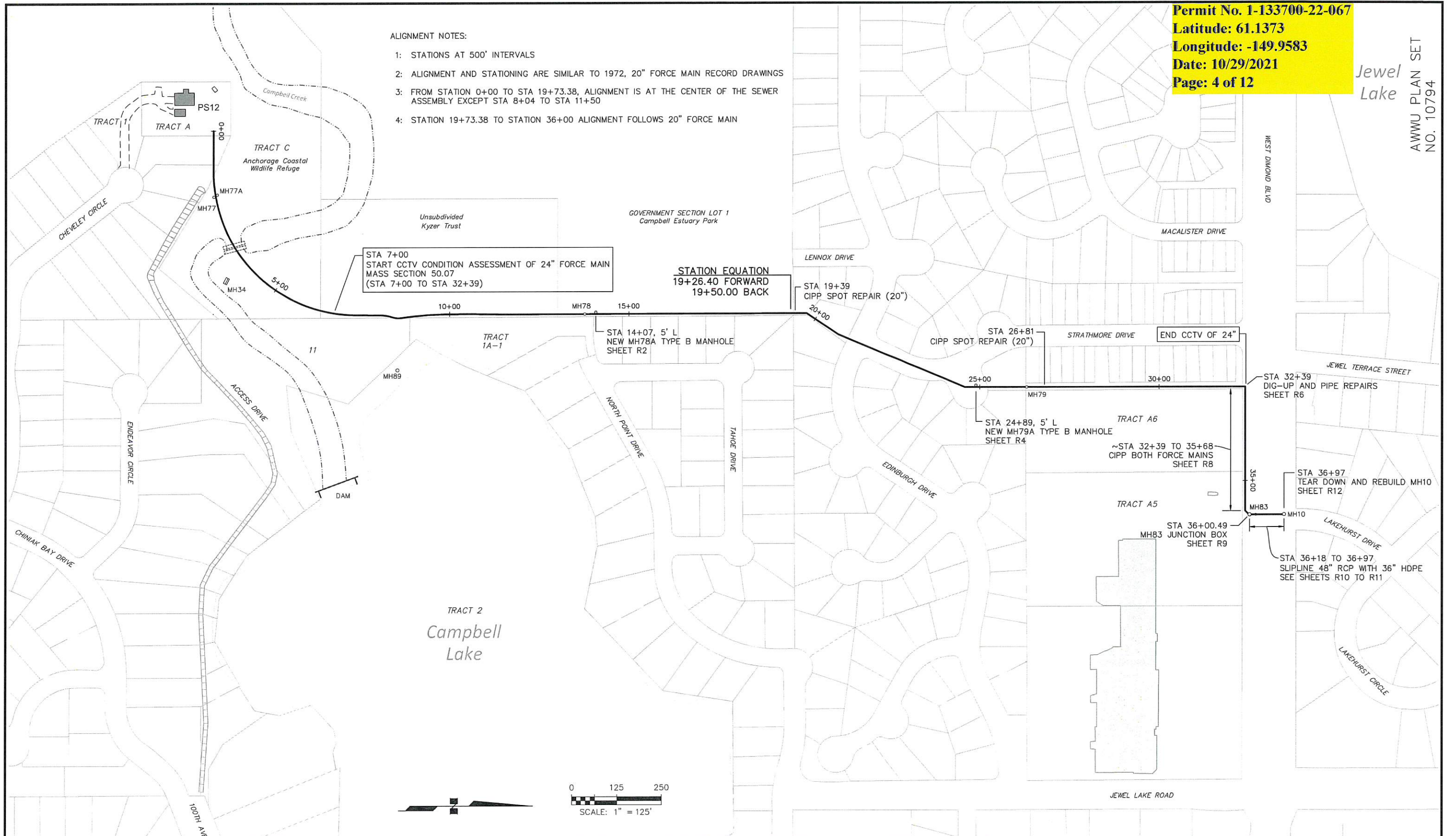
MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY
PS12 FORCE MAIN / GRAVITY JUNCTION REHAB
KEY MAPS
G3
HORIZ SCALE: NA
VERT SCALE: NA
DATE: 10/29/2021
GRID: SW 2525
PROJ. ID.: WW.H7713
SHEET 3 of 104

Permit No. 1-133700-22-067
 Latitude: 61.1373
 Longitude: -149.9583
 Date: 10/29/2021
 Page: 4 of 12

Jewel Lake
 AWWU PLAN SET
 NO. 10794

ALIGNMENT NOTES:

- 1: STATIONS AT 500' INTERVALS
- 2: ALIGNMENT AND STATIONING ARE SIMILAR TO 1972, 20" FORCE MAIN RECORD DRAWINGS
- 3: FROM STATION 0+00 TO STA 19+73.38, ALIGNMENT IS AT THE CENTER OF THE SEWER ASSEMBLY EXCEPT STA 8+04 TO STA 11+50
- 4: STATION 19+73.38 TO STATION 36+00 ALIGNMENT FOLLOWS 20" FORCE MAIN



STA 7+00
 START CCTV CONDITION ASSESSMENT OF 24" FORCE MAIN
 MASS SECTION 50.07
 (STA 7+00 TO STA 32+39)

STATION EQUATION
 19+26.40 FORWARD
 19+50.00 BACK

END CCTV OF 24"

STA 32+39
 DIG-UP AND PIPE REPAIRS
 SHEET R6

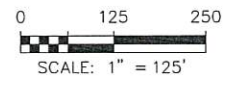
STA 24+89, 5' L
 NEW MH79A TYPE B MANHOLE
 SHEET R4

~STA 32+39 TO 35+68
 CIPP BOTH FORCE MAINS
 SHEET R8

STA 36+97
 TEAR DOWN AND REBUILD MH10
 SHEET R12

STA 36+00.49
 MH83 JUNCTION BOX
 SHEET R9

STA 36+18 TO 36+97
 SLIPLINE 48" RCP WITH 36" HDPE
 SEE SHEETS R10 TO R11



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	REV	DATE	BY
BASE	WTK	EVR		TELEPHONE			
TOPOGRAPHY				ELECTRIC			
PROFILE				CABLE TV			
SANITARY SEWER				TRAFFIC SIGNAL			
STORM SEWER				DESIGN			
WATER				QUANTITIES			
GAS				MUN. FINAL CHECK			
PLAN CHECK				REVISIONS			

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____ DATE: _____

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 DATA TRANSFERRED BY: _____
 COMPANY: _____ TITLE: _____
 BY: _____ DATE: _____

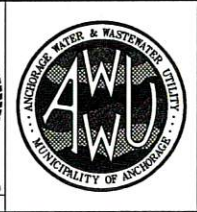
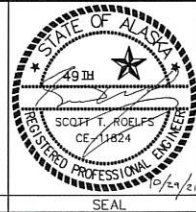
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SCHEDULE D

PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

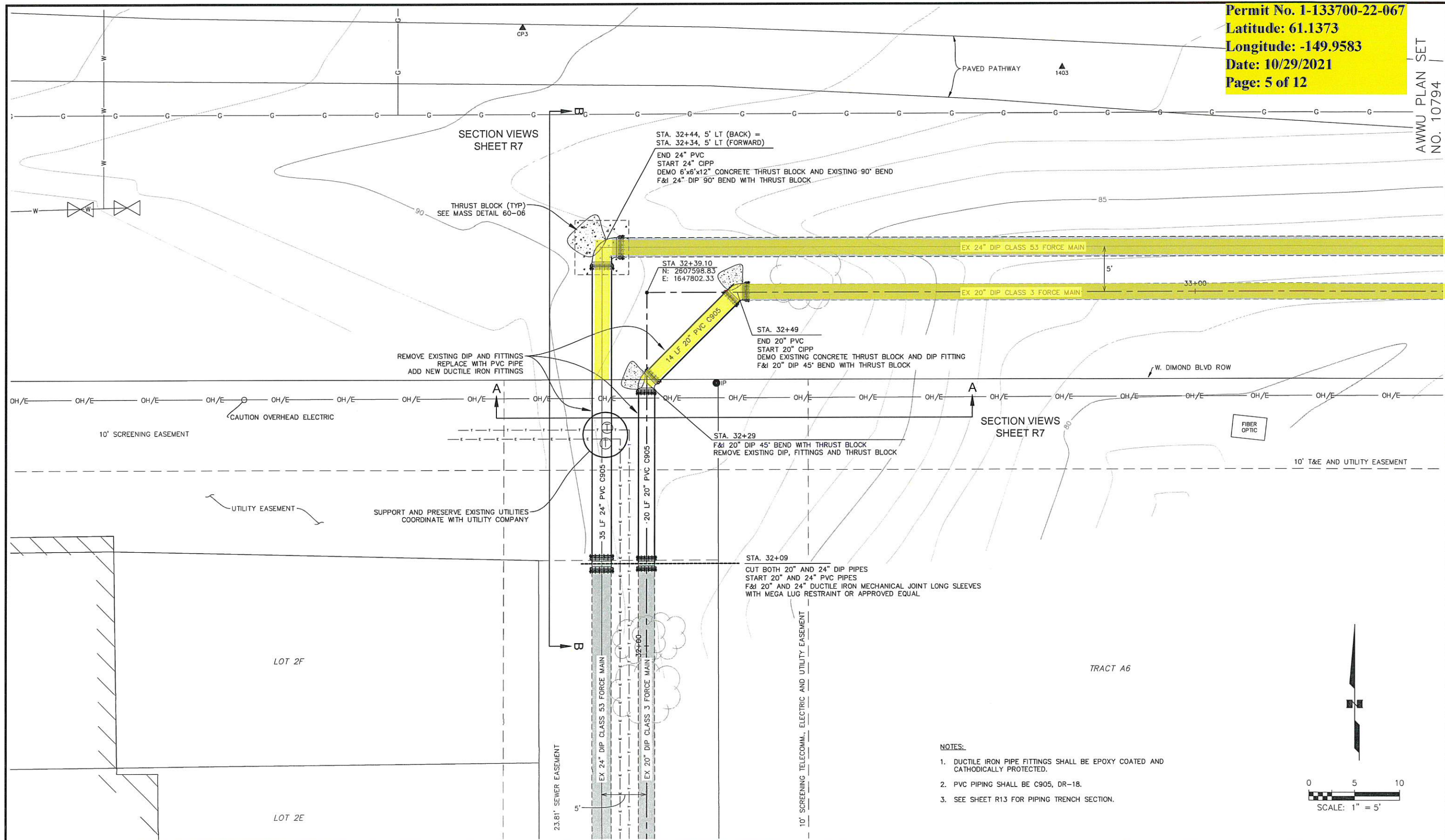
FORCE MAIN REHABILITATION

KEY MAP R1

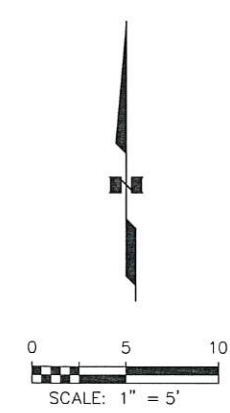
HORIZ SCALE: 1"=125' DATE: 10/29/2021 GRID: SW 2425 SHEET 92 of 104
 VERT SCALE: _____
 PROJ. ID.: WW.H7713

Permit No. 1-133700-22-067
 Latitude: 61.1373
 Longitude: -149.9583
 Date: 10/29/2021
 Page: 5 of 12

AWWU PLAN SET
 NO. 10794



- NOTES:**
- DUCTILE IRON PIPE FITTINGS SHALL BE EPOXY COATED AND CATHODICALLY PROTECTED.
 - PVC PIPING SHALL BE C905, DR-18.
 - SEE SHEET R13 FOR PIPING TRENCH SECTION.



VERIFY SCALE THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" = 1"

DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	EVR	VLK	TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						

PLAN CHECK

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____
 DATE: _____

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 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

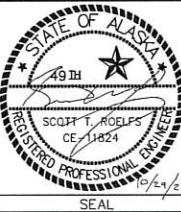
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SCHEDULE D

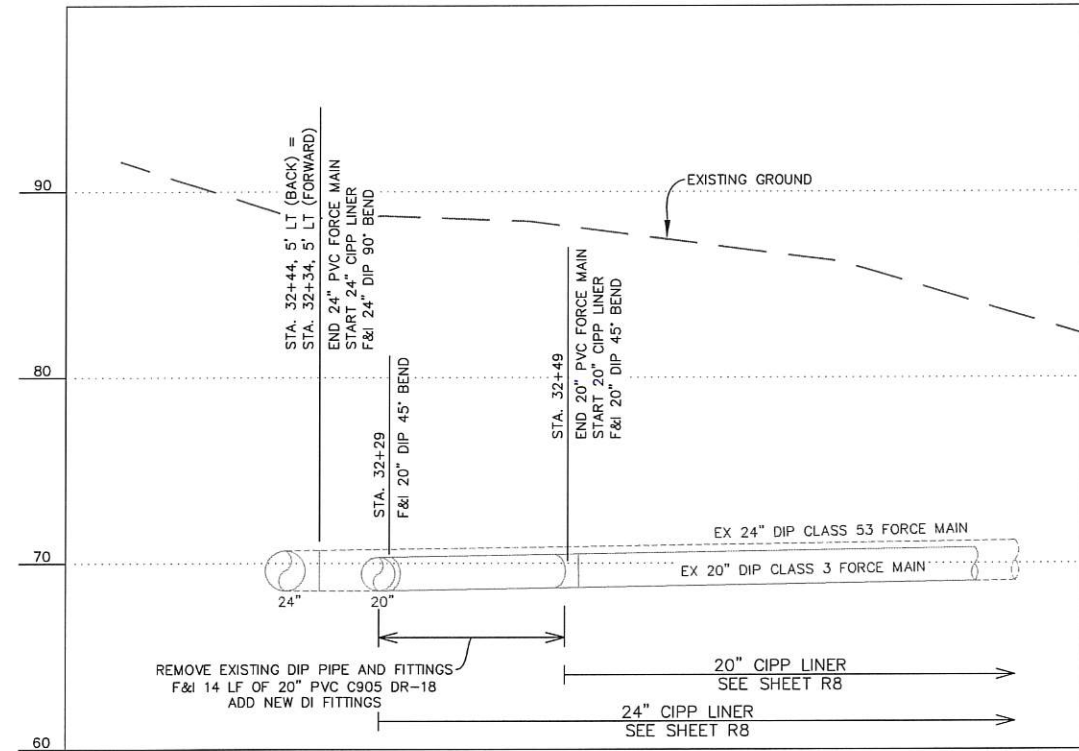
PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

DIG UP REPAIRS STA 32+39

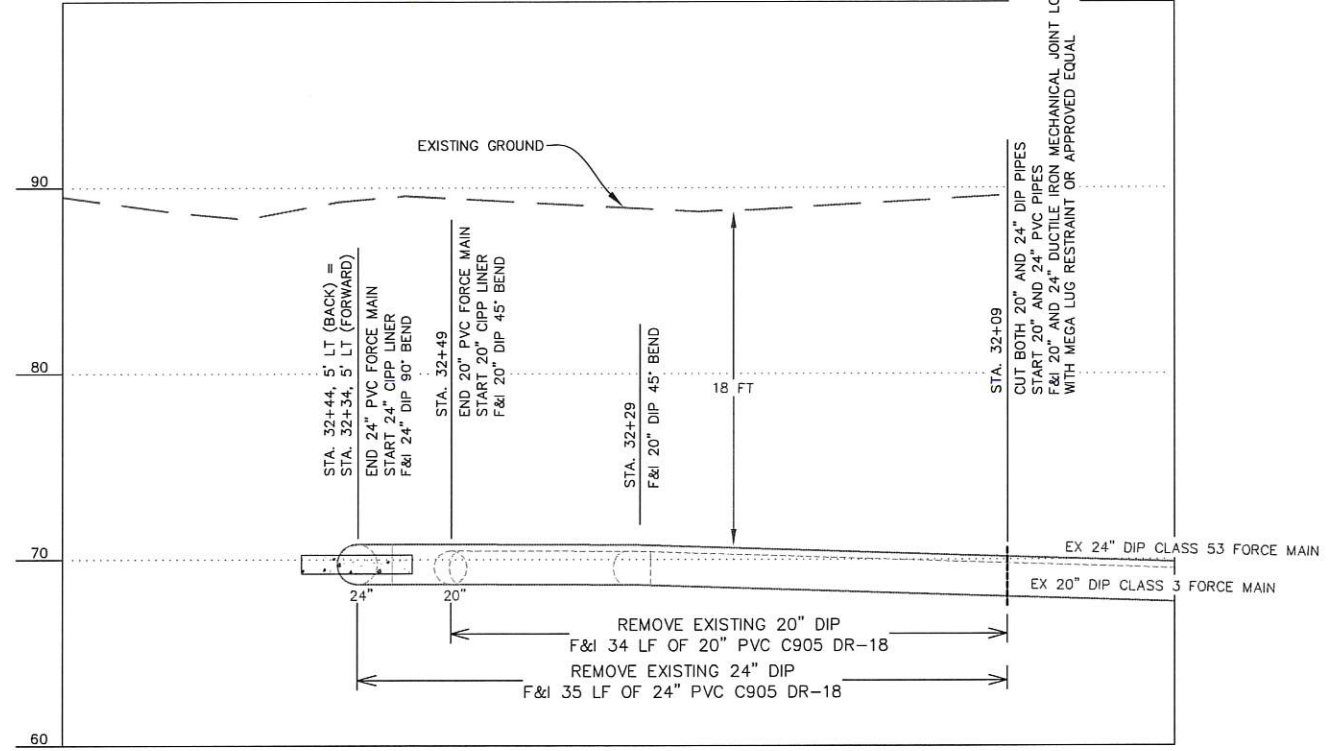
SITE PLAN

R6

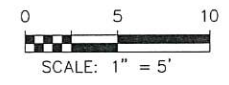
HORIZ SCALE: 1"=5' DATE: 10/29/2021 GRID: SW 2425 SHEET 97 of 104
 VERT SCALE: _____
 PROJ. ID.: WW.H7713



SECTION A-A



SECTION B-B



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY
BASE	EVR	MLR					
TOPOGRAPHY							
PROFILE							
SANITARY SEWER							
STORM SEWER							
WATER							
GAS							
PLAN CHECK							REVISIONS

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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 CONTRACTOR: _____
 BY: _____ TITLE: _____
 DATE: _____

2. DATA TRANSFERRED BY: _____
 CONTRACTOR: _____
 BY: _____ TITLE: _____
 DATE: _____

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 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

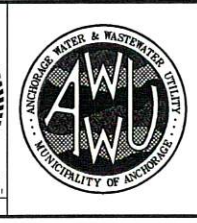
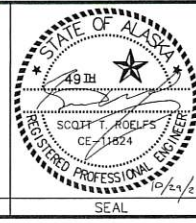
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 WATER & WASTEWATER UTILITY

SCHEDULE D

PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

DIG UP REPAIRS STA 32+39

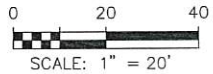
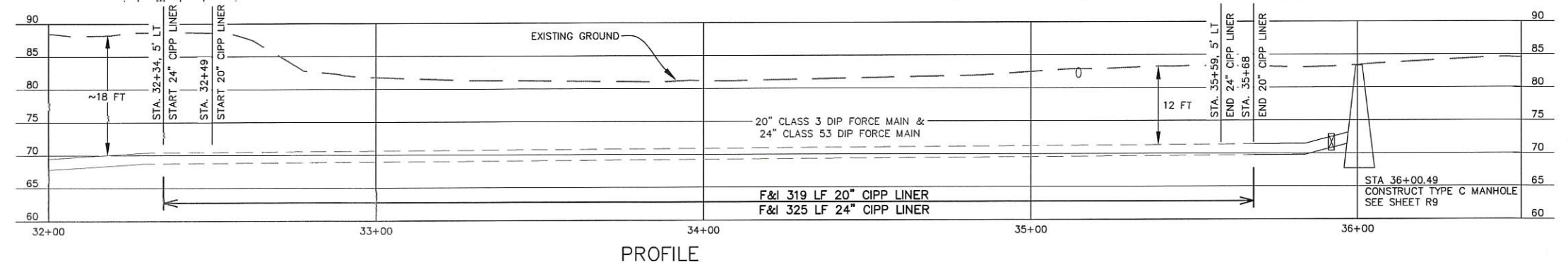
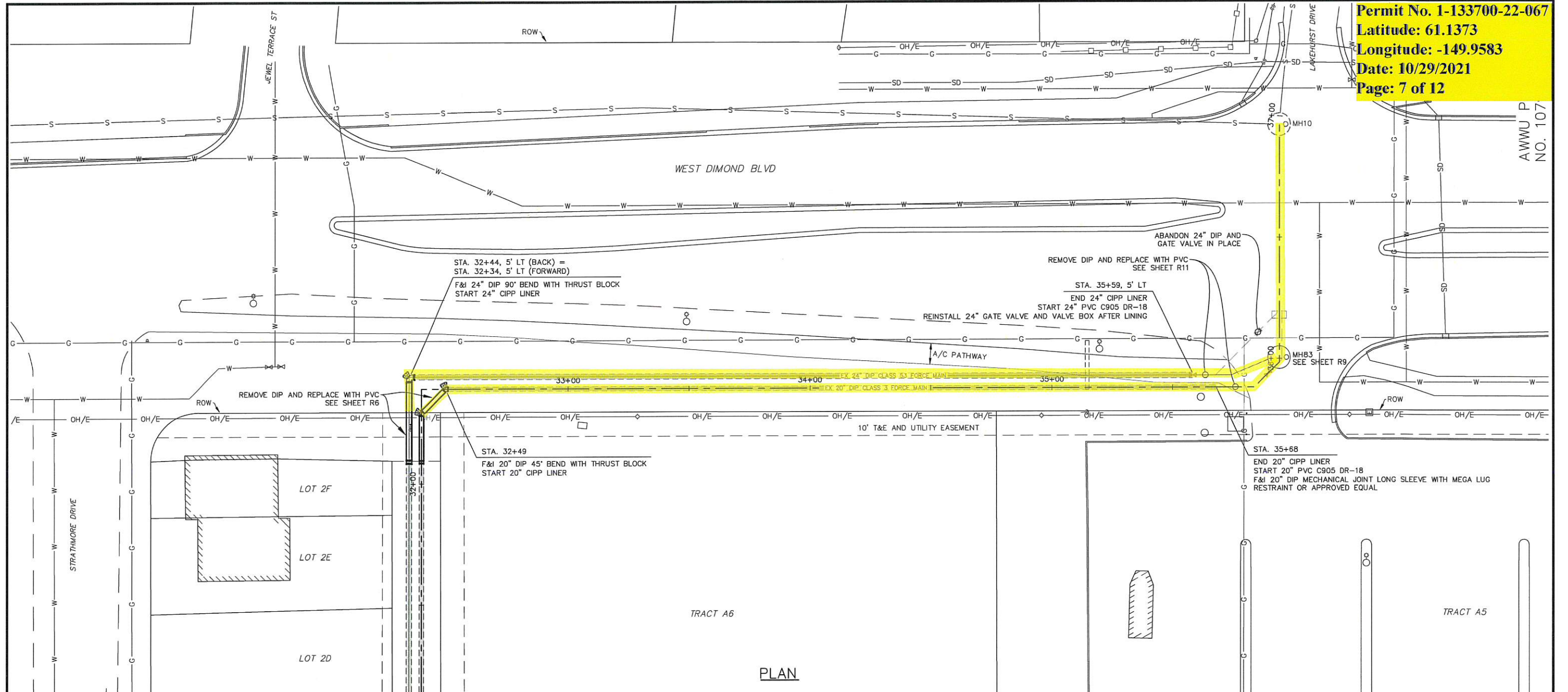
SECTION VIEWS

R7

HORIZ SCALE: 1"=5'
 VERT SCALE: 1"=5'
 DATE: 10/29/2021
 GRID: SW 2425
 PROJ. ID: WW.H7713

SHEET 98 of 104

AWWU P
 NO. 107



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORIZ SCALE: 1"=20' VERT SCALE: 1"=10'	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	EVR	VLR	TELEPHONE				
TOPOGRAPHY			ELECTRIC				
PROFILE			CABLE TV				
SANITARY SEWER			TRAFFIC SIGNAL				
STORM SEWER			DESIGN				
WATER			QUANTITIES				
GAS			MUN. FINAL CHECK				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

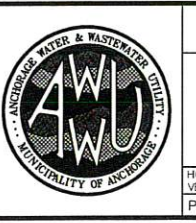
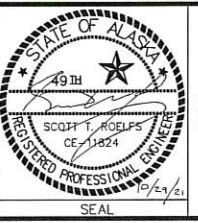
1. DATA PROVIDED BY: _____
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 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____
 DATE: _____

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 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

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SCHEDULE D

PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

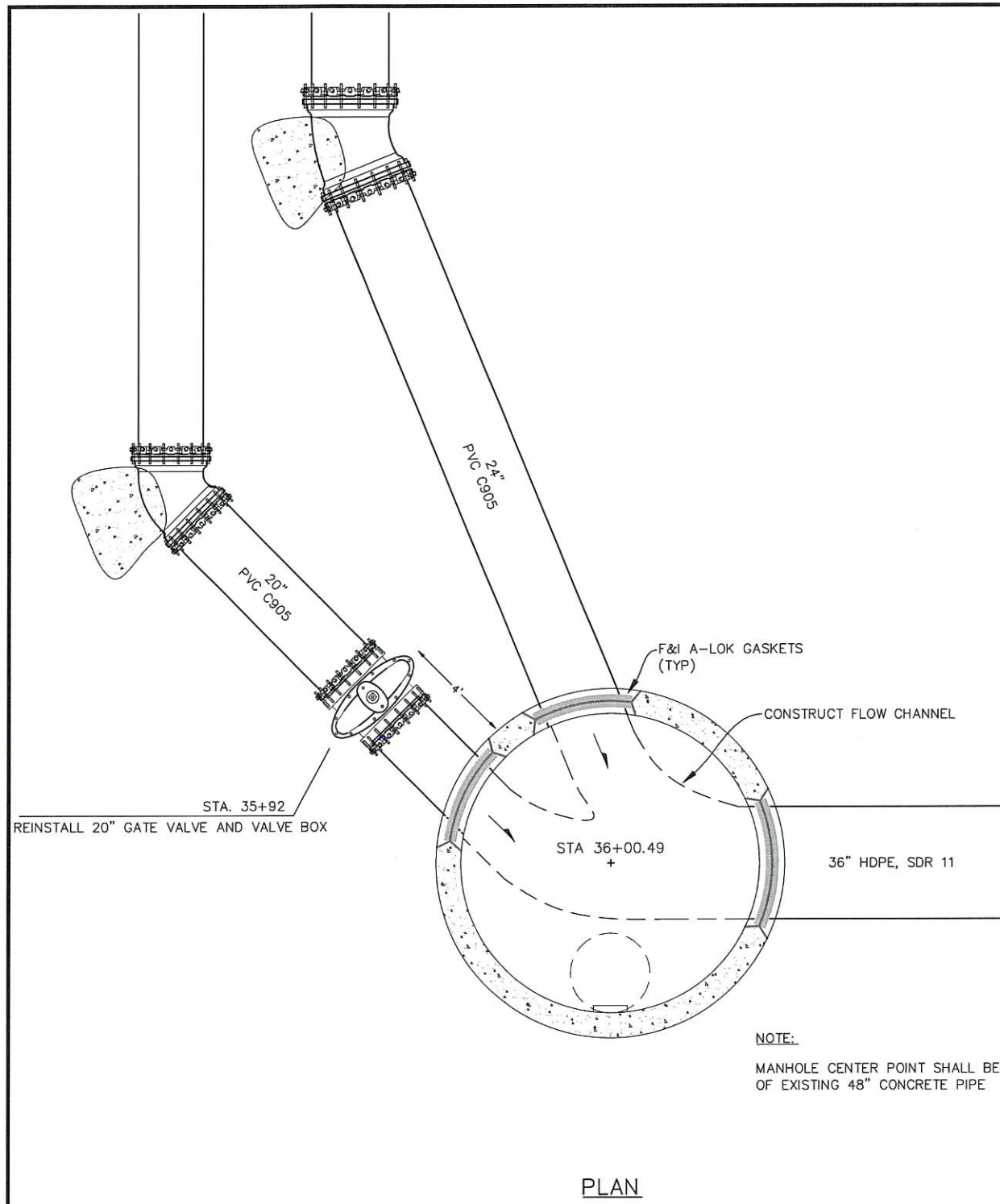
CIPP STA 32+34 TO 35+68

PLAN AND PROFILE

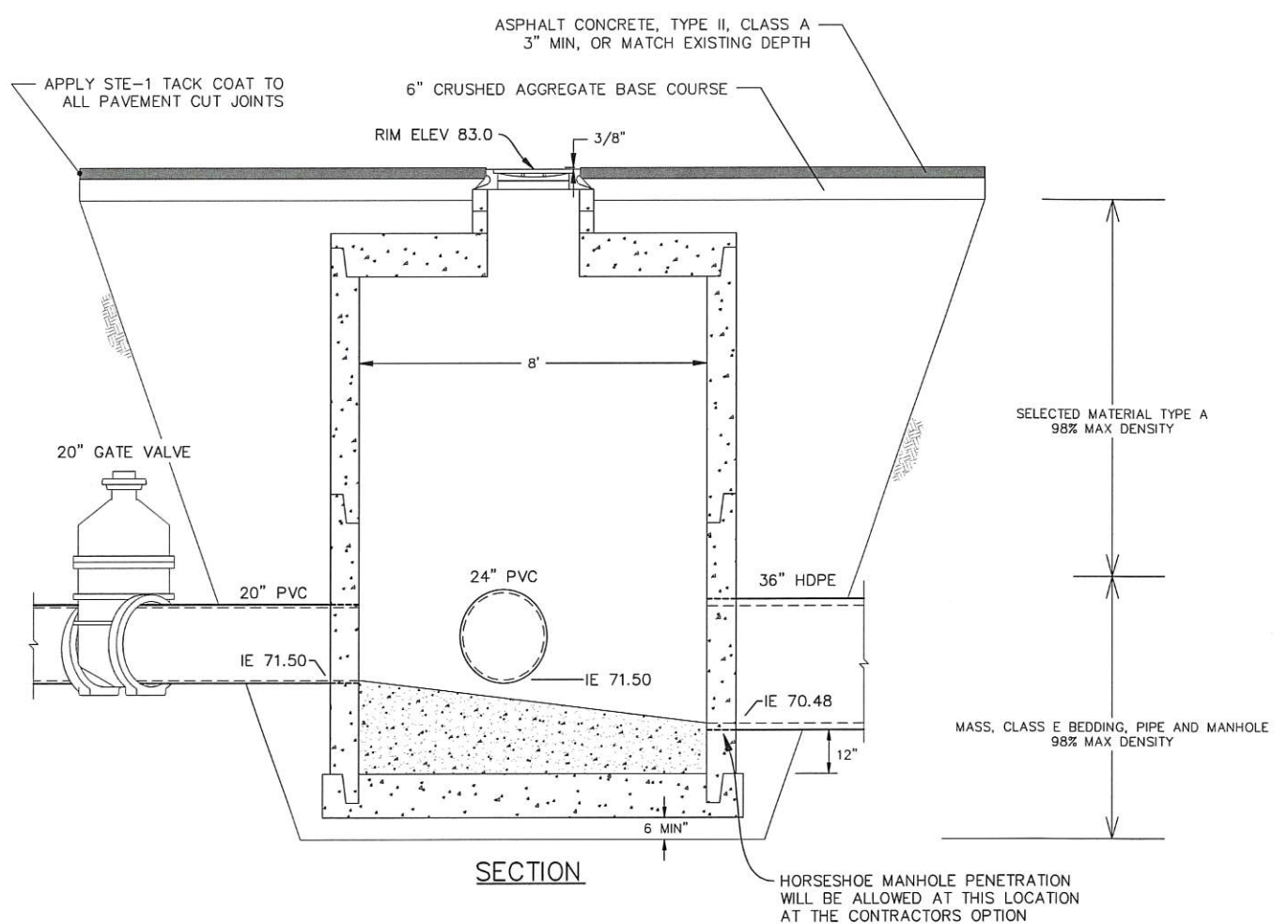
R8

HORIZ SCALE: 1"=20' DATE: 10/29/2021 GRID: 5W 2425 SHEET 99 of 104
 VERT SCALE: 1"=10'

PROJ. ID.: WWH7713

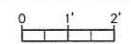


PLAN



SECTION

NEW TYPE C MANHOLE STA 36+00.49



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	WTK	EVN	TELEPHONE				
TOPOGRAPHY			ELECTRIC				
PROFILE			CABLE TV				
SANITARY SEWER			TRAFFIC SIGNAL				
STORM SEWER			DESIGN				
WATER			QUANTITIES				
GAS			MUN. FINAL CHECK				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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 BY: _____ TITLE: _____
 DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____
 DATE: _____

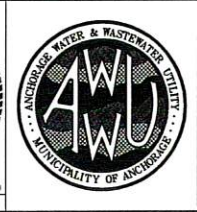
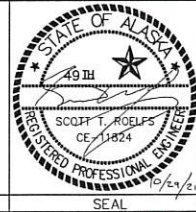
3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

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 PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

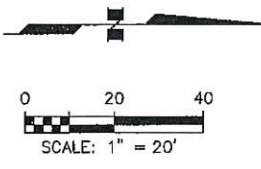
MH 83, JUNCTION MANHOLE STA 36+00
PLAN + SECTION R9

HORIZ SCALE: 1"=2'
 VERT SCALE: 1"=2'
 DATE: 10/29/2021
 GRID: SW 2425
 PROJ. ID.: WW.H7713

SHEET 100 of 104

Permit No. 1-133700-22-067
 Latitude: 61.1373
 Longitude: -149.9583
 Date: 10/29/2021
 Page: 9 of 12

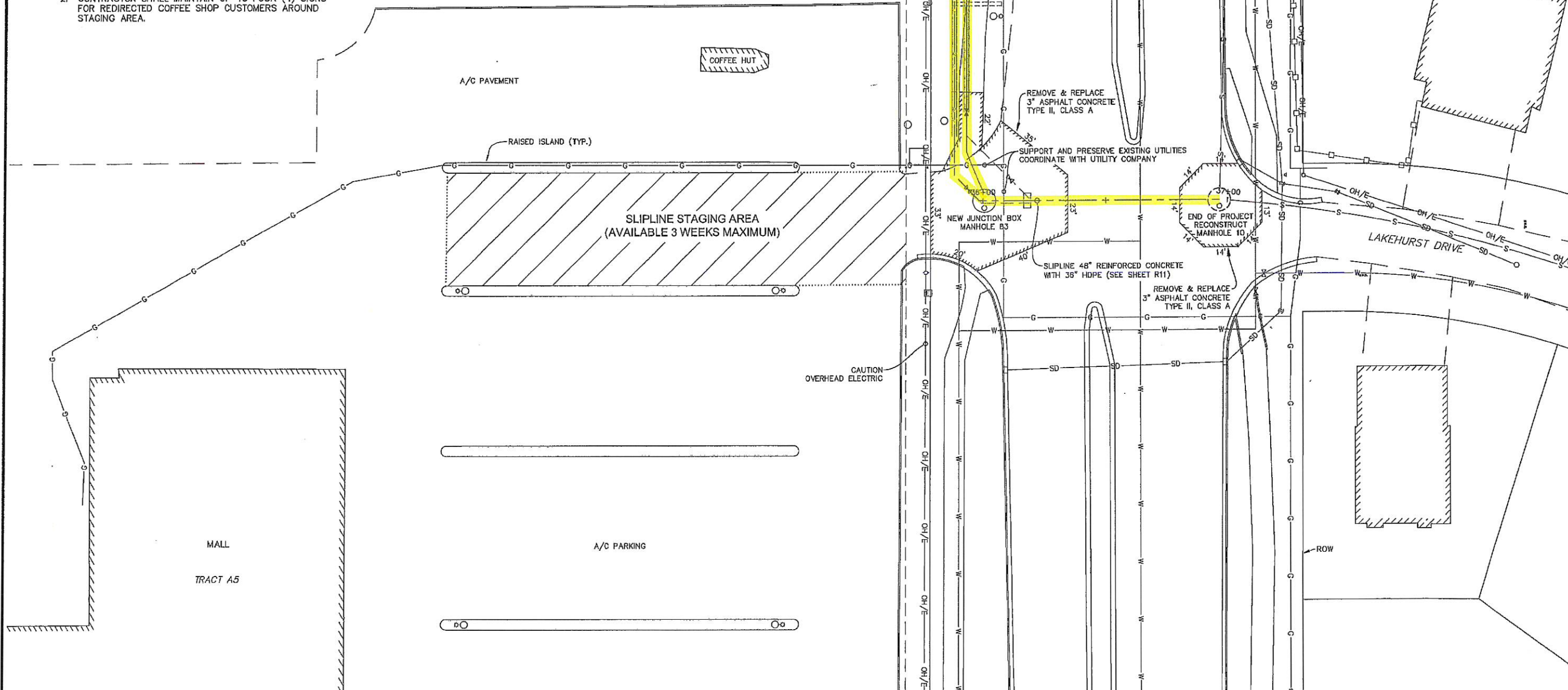
AWWU PLAN SET
 NO. 10794



TRACT A6

NOTES:

1. MAINTAIN CONTINUOUS ACCESS TO COFFEE HUT.
2. CONTRACTOR SHALL MAINTAIN UP TO FOUR (4) SIGNS FOR REDIRECTED COFFEE SHOP CUSTOMERS AROUND STAGING AREA.



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE
BASE	EVK	VLR	TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 BY: _____ TITLE: _____
 DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____
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 COMPANY: _____
 BY: _____ TITLE: _____
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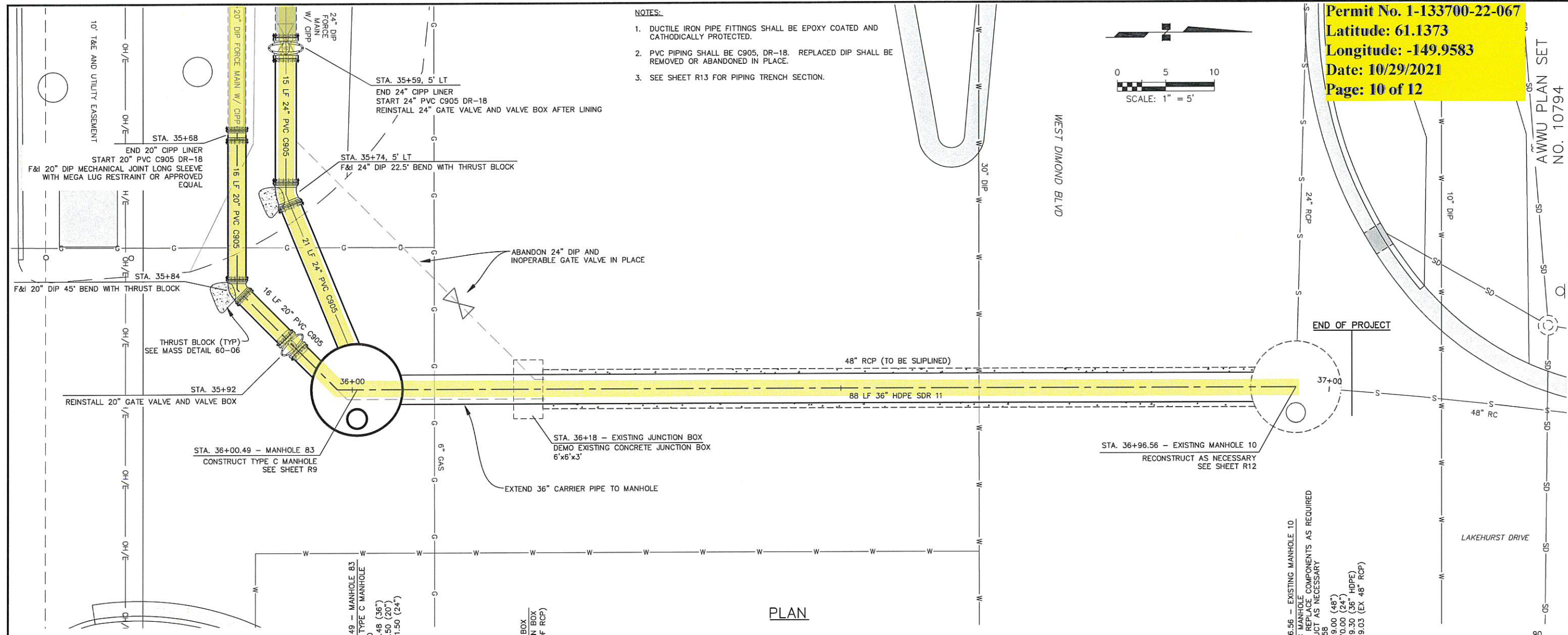
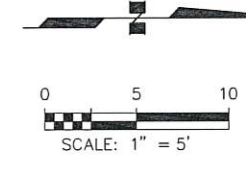
SCHEDULE D
 PS12 FORCE MAIN / GRAVITY JUNCTION REHAB
SLIPLINE SITE PLAN

HORIZ SCALE: 1"=20' DATE: 10/29/2021 GRID: SW 2425 SHEET 101 of 104
 VERT SCALE: _____
 PROJ. ID.: WW.H7713

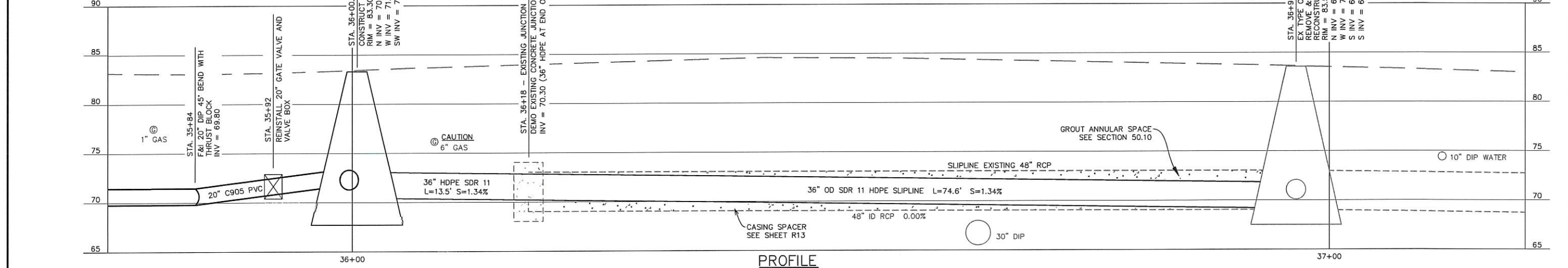
Permit No. 1-133700-22-067
 Latitude: 61.1373
 Longitude: -149.9583
 Date: 10/29/2021
 Page: 10 of 12

AWWU PLAN SET
 NO. 10794

- NOTES:
- DUCTILE IRON PIPE FITTINGS SHALL BE EPOXY COATED AND CATHODICALLY PROTECTED.
 - PVC PIPING SHALL BE C905, DR-18. REPLACED DIP SHALL BE REMOVED OR ABANDONED IN PLACE.
 - SEE SHEET R13 FOR PIPING TRENCH SECTION.



PLAN



PROFILE

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" = 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
 HORIZ SCALE: 1"=5'
 VERT SCALE: 1"=5'

DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY
BASE	EVR	VLR			
TOPOGRAPHY					
PROFILE					
SANITARY SEWER					
STORM SEWER					
WATER					
GAS					

PLAN CHECK

RECORD DRAWING

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 CONTRACTOR: _____
 BY: _____ TITLE: _____
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 BY: _____ TITLE: _____
 DATE: _____

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 ANCHORAGE, AK 99508
 LICENSE #AEC0368

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 WATER & WASTEWATER UTILITY

SCHEDULE D

PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

SLIPLINE STA 36+00 TO 36+95

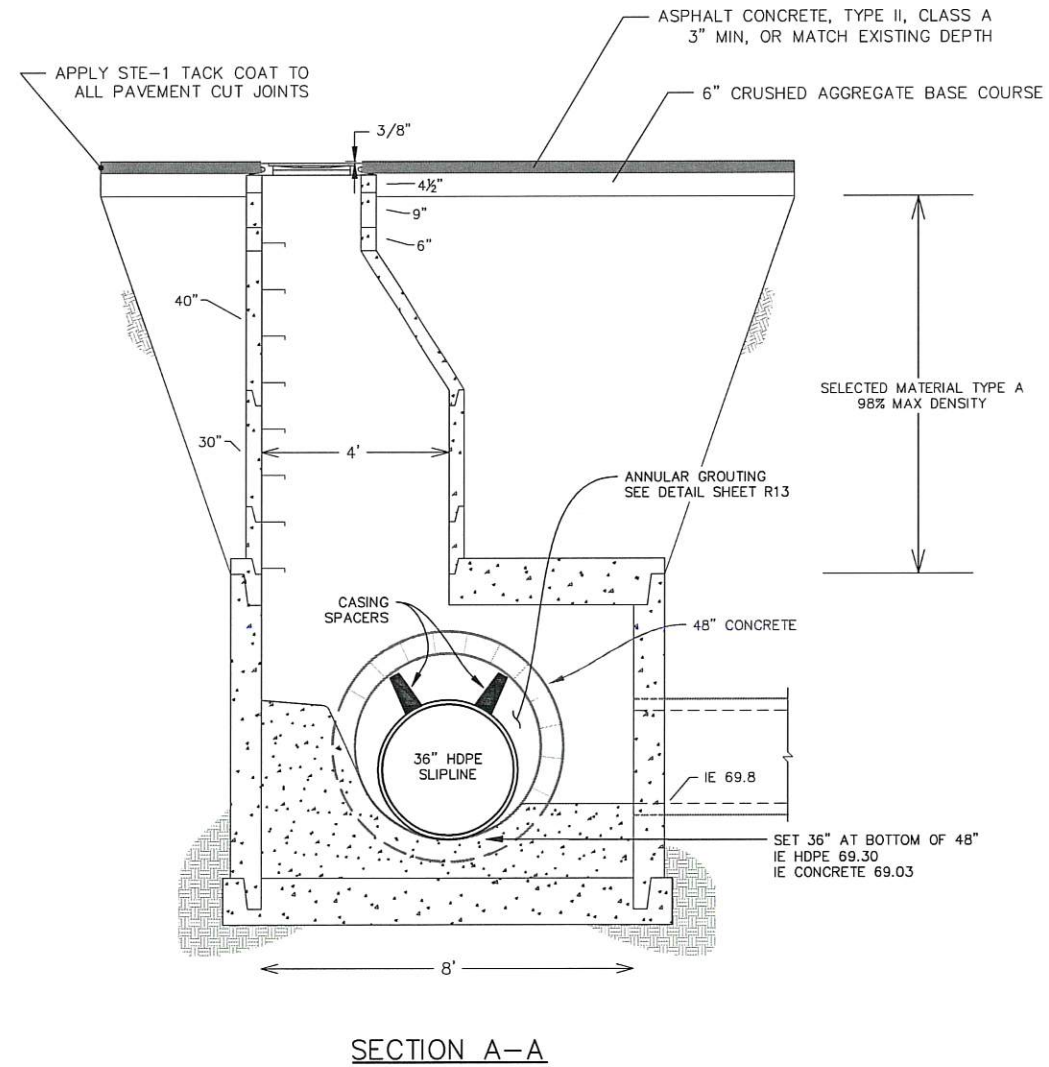
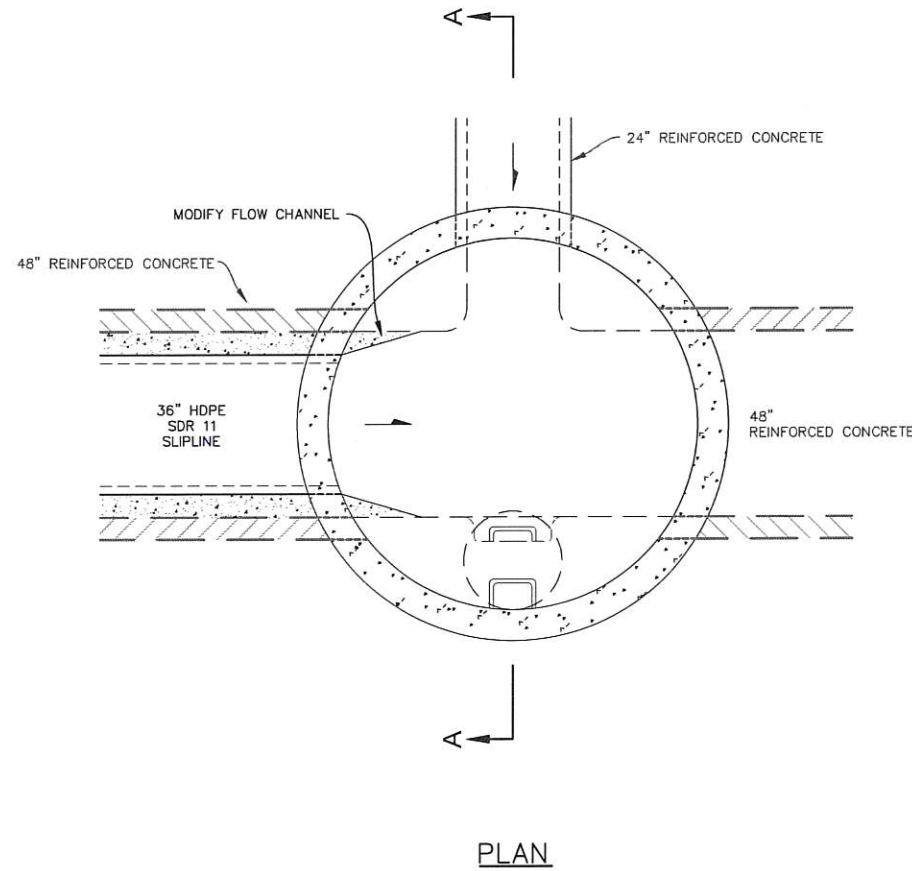
PLAN AND PROFILE

R11

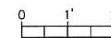
HORIZ SCALE: 1"=5'
 VERT SCALE: 1"=5'
 DATE: 10/29/2021
 GRID: SW 2425
 PROJ. ID.: WW.H7713

SHEET 102 of 104

NOTE:
 TO FACILITATE SLIPLINING OF THE UPSTREAM 48" R.C.P., THE CONTRACTOR SHALL REMOVE AND REPLACE MANHOLE COMPONENTS INCLUDING THE CONE AND REDUCING SLAB AS NECESSARY TO FACILITATE THE SLIPLINING OPERATION. ALL WORK SHALL BE IN ACCORDANCE WITH MASS SECTION 50.06 EXISTING MANHOLE MODIFICATIONS.



EXISTING MANHOLE #10, STA 36+96.47



VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" = 1" IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE: 1"=2' HORIZ SCALE: 1"=2' VERT SCALE:

DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	WTK	EVR	TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN CHECK									REVISIONS

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

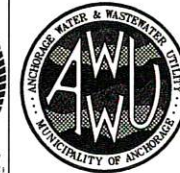
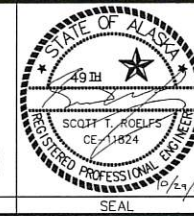
- DATA PROVIDED BY: _____
 This shall serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.
 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____
- DATA TRANSFERRED BY: _____
 CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____
- Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____ TITLE: _____
 BY: _____ DATE: _____

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SCHEDULE D

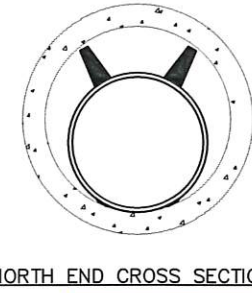
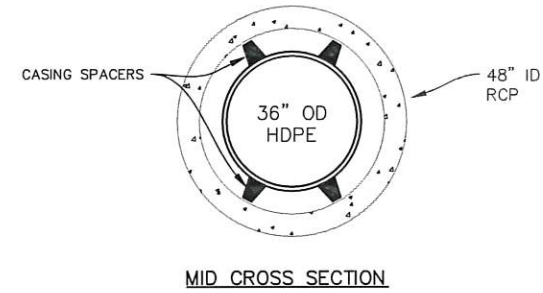
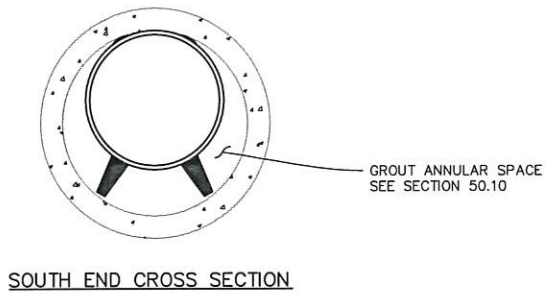
PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

MANHOLE 10 RECONSTRUCTION
STA 36+96.97 PLAN AND SECTION R12

HORIZ SCALE: 1"=2' DATE: 10/29/2021 GRID: SW 2425 SHEET 103 of 104
 VERT SCALE: _____ PROJ. ID.: WWH7713

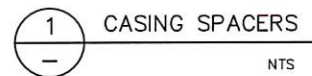
NOTES:

- SUBMIT A PLAN DESCRIBING THE SLIPLINING OPERATION INCLUDING CASING SPACERS AND GROUTING. LIST EQUIPMENT AND MATERIALS, DESCRIBE METHODS, PROPOSED MATERIALS AND SCHEDULES. SHOW THAT THE LINING CAN BE COMPLETED, AND THE TEMPORARY PIPING CAN BE PUT IN PLACE WITHIN THE 8 HOUR PUMP STATION SHUTDOWN ALLOWED. DESCRIBE CONTINGENCY PLANS IN THE EVENT THAT WORK CANNOT BE COMPLETED WITHIN THE 8 HOURS ALLOWED.
- CASING SPACERS SHALL BE PLACED AROUND THE CARRIER PIPE AT 10 FT INTERVALS TO KEEP THE PIPE ALIGNED AND MINIMIZE DEFLECTION BETWEEN SPACERS.
- IT WILL BE IMPORTANT TO ASSURE THAT THE CARRIER PIPE AND SPACERS KEEP THE INTENDED VERTICAL ALIGNMENT AND THE HDPE DOES NOT ROTATE OR TWIST IN THE HOST PIPE DURING SLIPLINING. CLEAR REFERENCE POINTS SHALL BE PROVIDED ON THE INTENDED TOP OF THE CARRIER PIPE AT BOTH ENDS AND AT 10 FOOT INTERVALS ALONG THE LENGTH. THE CONTRACTOR SHALL ALSO PROVIDE A RELIABLE MEANS TO TWIST THE PIPE AT BOTH ENDS IF THE CARRIER PIPE DOES TWIST OR ROTATE DURING THE SLIPLINE PROCESS.
- CARRIER PIPE TOLERANCES:
 - THE DESIGN SLOPE OF THE CARRIER PIPE IS 1.34%. OVER ANY 10 FT SEGMENT, THE SLOPE WILL BE ALLOWED TO VARY, PLUS OR MINUS 0.2% SLOPE.
 - THE CARRIER PIPE CENTERLINE ALIGNMENT WILL BE ALLOWED TO VARY UP TO 2" EITHER SIDE OF HOST PIPE CENTERLINE.

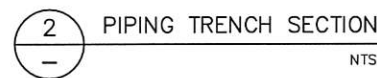
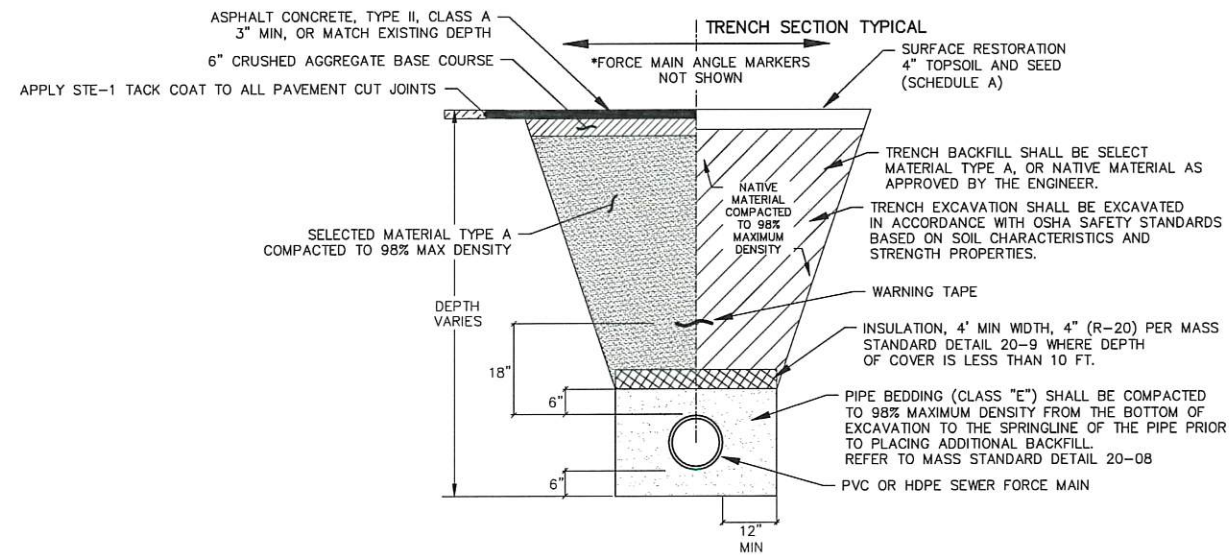


AWWU PLAN SET
NO. 10794

Permit No. 1-133700-22-067
Latitude: 61.1373
Longitude: -149.9583
Date: 10/29/2021
Page: 12 of 12



**TRENCH SECTION IN PAVED AREAS
(DISTURBED ASPHALT REPLACED IN KIND IN DOT ROW)**



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	WTK	EVR	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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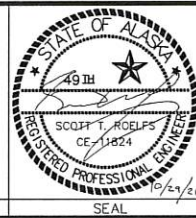
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SCHEDULE D

PS12 FORCE MAIN / GRAVITY JUNCTION REHAB

FORCE MAIN REHABILITATION DETAILS

R13

HORIZ SCALE: _____ DATE: 10/29/2021 GRID: SW 2425
 VERT SCALE: _____ PROJ. ID.: WW.H7713 SHEET 104 of 104