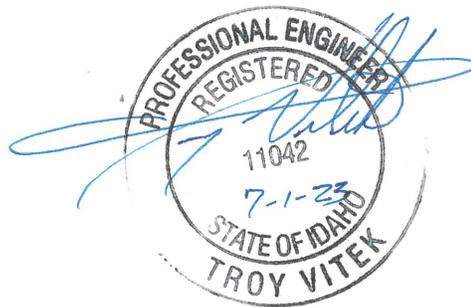


CITY OF TWIN FALLS REVISIONS

to the

2020 IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION



July 1, 2023

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Changes to the Specifications

City Revisions to the 2017 ISPWC that were adopted statewide and incorporated into the *2020 ISPWC* were eliminated from the *City Revisions to the 2020 ISPWC*.

Additionally, minor revisions were made throughout the document.

Changes to the Standard Drawings

Modifications highlighted in gray indicate a change from the most recent City adopted ISPWC Standard Drawings. Deletions from the most recent City adopted ISPWC Standard Drawings are removed from the drawing and not indicated.

When the entire title block is shaded gray, it is either an entirely new drawing or so significantly different from the original ISPWC standard drawing it should be treated as a different drawing.

Division 100 – GENERAL CONDITIONS

Article 7 – Contractor’s Responsibilities

Add Item 7.21 Public Notifications

The Contractor shall notify the public as follows:

- A. *Public Announcement* – When public streets are to be closed, the Contractor shall notify the news media no less than forty-eight (48) hours in advance including all locally broadcast radio stations, newspapers, and television stations.
- B. *Business Owners Affected* – Meet with each business owner whose business access shall be limited or blocked during construction. The Contractor shall find an alternative access route around the construction or access through the construction. This shall be done at least 48 hours prior to the actual start of work affecting that business.
- C. *Adjacent Property Owners* – Contractor shall be required to notify all adjacent property owners with a notice attached to their doorknobs twenty-four (24) hours in advance of each of the following:

- a. Beginning of construction,
- b. Road closures,
- c. Private access closures, or
- d. Temporary shutdown of any utilities.

The notices shall include the date when the work will be performed, the name and local telephone number of the Contractor's representative who can be contacted in case of problems or complaints.

Notices shall be submitted to the Engineer for review and acceptance prior to public distribution.

D. *Contractor Signs* – Contractor shall be responsible for posting two (2) Contractor identification signs. One sign shall be posted at each end of the project and shall be clearly visible to the public stating the name of the Contractor and 24-hour contact information in case of emergency. The signs shall be located within the City right-of-way and outside of any sight triangles. The signs shall have lettering no less than 6" tall unless otherwise approved by the Engineer. The signs shall be in accordance with the City of Twin Falls Sign Ordinance 2957.

The Contractor shall respond to complaints within 24 hours.

Add Item 7.22 Notifications to the City of Twin Falls

The Contractor shall provide a 48-hour advance notice to City representatives prior to all requested inspections and prior to the commencement of all paving operations.

Add Item 7.23 Pre-paving and Pre-construction Meetings

Pre-construction Meeting:

The developer or their designee shall host a pre-construction meeting prior to any work beginning. Required attendance shall be Developer or representative, Engineer, Testing Agency, Contractor, and City of Twin Falls representative.

Pre-paving Meeting:

At least 48 hours prior to paving the Contractor shall host a pre-pave meeting to discuss schedule, traffic control, pavement joint layout, random number generator provided by the City, and determination of what the “Lot” will be with respect to testing and acceptance. Required attendance shall be Independent Testing Agency, General Contractor, Paving Contractor, and City of Twin Falls representatives.

Delete Paragraph 14.02.B in its entirety and insert the following in its place:

Contractor shall employ an independent testing laboratory or testing agency and shall be responsible for arranging and shall pay for all specified tests, inspections, and approvals (including tests, inspections, and approvals to be paid for on a cash allowance basis) required for Owner’s and Engineer’s acceptance of the Work at the site except: Costs incurred in connection with test or inspection pursuant to paragraph 14.05.C of the General Conditions shall be paid for as provided in said paragraph; and as otherwise specifically provided in the Contract Documents.

Tests required by Contract Documents to be performed by Contractor’s Independent Testing Laboratory. Independent Testing Laboratory shall be a qualified testing laboratory or agency licensed or certified in accordance with AASHTO R-18, “Standard Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories” or be an ITD qualified laboratory.

Calibrate testing equipment per manufacturer’s recommendations and in accordance with AASHTO and ASTM standards. Those performing testing shall be WAQTC or ASTM certified to perform that test. Upon request, certificates of those performing testing shall be submitted to the City for verification.

Add Section 101 – CITY OF TWIN FALLS REQUIREMENTS

Article 1 – Definitions and Terminology

Add Item A as follows:

Independent Testing Laboratory – Any laboratory other than a member of the company, group, or any of the stockholders or any entity controlled by or under common control with any of the stockholders or parties of the Development or the Contractor. The independent testing agency must be approved by the City of Twin Falls for each development and project.

Laboratory – The materials laboratory of the City of Twin Falls and any other laboratory designated by the City Engineer. Unless otherwise specified, in case of conflict, the results of the laboratory of the City of Twin Falls supersede any third party or independent laboratory.

Regular Working Hours – Any period not to exceed eight hours between 8:00 AM and 5:00 PM on a day other than a legal holiday, Saturday or Sunday.

Add Item B as follows:

When materials or equipment are to be incorporated into the work, they shall be in new or unused operable condition unless otherwise specified.

Division 200 – EARTHWORK

Section 201 – CLEARING AND GRUBBING AND REMOVAL OF OBSTRUCTIONS

Subsection 3.1 Clearing and Grubbing

Add the following to Item A.5.f:

Contractor shall ensure tree service performing work is licensed and has obtained applicable permits as required by the City of Twin Falls Tree Ordinance 2791.

Add the following to Item B.4:

If the area has grown alfalfa in the past five (5) seasons, Contractor shall strip a minimum of 12 inches and apply an approved sterilant in accordance with manufacturer's recommendations within the right-of-way.

Section 202 – EXCAVATION AND EMBANKMENT

Subsection 3.2 Excavation

Add Item A.5 as follows:

No payment shall be made for excavation of any material, including, rock, below subgrade elevations. There shall be no payment for overbreak.

Add Item C.6 as follows:

At no time shall there be a cut in excess of six (6) inches in depth at the limits of construction, such as cross streets, unless the cross street is

completely barricaded to prevent automobiles from high centering at the cut line.

Subsection 3.8 Embankment Construction

Add the following to Item C.1:

The testing frequency for materials placed under the curb, gutter, and sidewalk shall be 1 test per each 300 linear feet per lift. Should a compaction test fail, rework and re-compact the area around the failed compaction test. The length of the area to be reworked and re-compacted shall be determined as half the distance from the failing test to the next passing test on both sides.

Division 300 – TRENCHING

Section 301 – TRENCH EXCAVATION

Subsection 3.1 General Requirements

Modify Item A as follows:

Replace “Standard Drawing SD-301” with “Twin Falls Standard Drawing TFSD-301”.

Replace “Standard Drawing SD-306 – ” with “Twin Falls Standard Drawing TFSD-306 – Small”.

Subsection 3.5 Survey Line and Grade

Modify Item A as follows:

Replace “Engineer” with “Contractor’s Surveyor” unless otherwise specified.

Delete Item B.

Modify Item C as follows:

Replace “Engineer” with “Contractor’s Surveyor” unless otherwise specified.

Section 302 – ROCK EXCAVATION

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Subsection 3.3 Blasting General Safety

Add the following to Item A:

The Contractor shall be responsible for obtaining all necessary permits for the use of explosives from the City of Twin Falls Fire Marshal. No blasting shall be done within twenty (20') feet of a completed pipe or structure unless approved by the Engineer.

Subsection 4.1 Measurement and Payment

Delete the second to last sentence of Item A and replace it with the following:

“Measurement to also include the portion of boulders in excess of 3/4 cubic yard which are within the neat line dimensions of the trench.”

Section 303 – EXPLORATORY EXCAVATION

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Section 304 – TRENCH FOUNDATION STABILIZATION

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Section 305 – PIPE BEDDING

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Subsection 2.2 Type I Bedding

Add the following to Item A:

Type I bedding material may also be: 1/2 inch or 3/8 inch pea gravel. The material shall be a clean mixture free from organic or deleterious matter.

It shall be washed, dried, and screened to meet the following gradation requirements:

Sieve Size	Percent Passing
3/4 inch	100
1/2 inch	85 – 100
No. 4	10 – 30
No. 8	0 – 10
No. 200	0 – 3

Type I bedding material may also meet the following gradation:

Sieve Size	Percent Passing
1 inch	100
3/4 inch	80 – 100
1/2 inch	70 – 90
3/8 inch	50 – 80
No. 4	30 – 50
No. 8	20 – 40
No. 200	2 – 8

A geotextile filter fabric may be required at the discretion of the Engineer at no additional cost to the Owner.

Section 306 – TRENCH BACKFILL

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Subsection 3.3 Type A Trench Backfill (A-1, A-2, A-3)

Modify Item C.1 as follows:

Replace “8” with “12”.

Delete Item C.4.a and replace it with the following:

Horizontal Frequency: Every 50-100 linear feet
Vertical Frequency: Minimum 1 test per 12" loose lift.

Subsection 3.6 Service/Utility Trench Backfill

Modify Item A as follows:

Replace "SD-306" with "Twin Falls Standard Drawing TFSD-306".

Delete Item B and replace it with the following:

For trenches in traffic areas, refer to Twin Falls Standard Drawing TFSD-306.

Section 307 – STREET CUTS AND SURFACE REPAIRS

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace "4" with "24"

Subsection 2.1 Concrete

Modify Item B as follows:

Replace "3000" with "4000"

Subsection 3.1 General Requirements

Modify Item B as follows:

Delete "4 feet in width." from the last sentence and replace it with:

"as shown in the standard drawings."

Delete Item C and replace it with the following:

Backfill across a road, street, or driveway section at the end of each workday and in no case less than twenty-four (24) hours after the start of the work. The backfill shall conform to the Twin Falls Standard Drawings, TFSD-301 and TFSD-306.

Temporary Surface Repair

Should weather conditions not allow the construction of a permanent surface restoration, the Contractor shall temporarily fill the trench up to finish grade with gravel leveling course material. The temporary fill shall be kept in good repair at all times and shall never be allowed to deviate from the finished roadway surface more than one inch (1”).

As soon as weather permits, the temporary fill shall be removed and the permanent patch constructed. No additional compensation will be paid for the construction or removal of the temporary fill. A temporary winter patch may be constructed at the Contractor’s expense using an approved asphaltic winter patch material which has been approved by the City Engineer. This material shall be maintained by Contractor until such time as a permanent surface restoration can be constructed.

Permanent Surface Repair

Complete permanent surface restoration and final cleanup as soon as possible and in no case longer than 30 days after initial excavation or as otherwise specified in the Contract Documents, or approved by the Engineer. Finished subbase and gravel surfaces shall not vary more than one-half inch (1/2”) from proper grade when measured with a ten (10) feet straight edge and shall be repaired in as good or better condition as existed prior to excavation.

Subsection 3.6 Type “B” Surface Restoration (Concrete Roadway Surfaces)

Modify Item B as follows:

Replace “Standard Drawing SD-303” with “Twin Falls Standard Drawing TFSD-303”.

Delete Item D and replace it with the following:

Saw cut along existing score lines or expansion joints where feasible.
Replace all panels in their entirety when saw cut by trenching operations.

Subsection 3.7 Type “C” Surface Restoration (Gravel Roadway Surfaces)

Modify Item B as follows:

Replace “Standard Drawing SD-303” with “Twin Falls Standard Drawing TFSD-303”.

Subsection 3.8 Type “P” Surface Restoration (Asphalt Roadway Surfaces)

Modify Item B as follows:

Replace “Standard Drawing SD-303” with “Twin Falls Standard Drawing TFSD-303”.

Delete Item F and replace it with the following:

After base compaction, trim back existing pavement by cutting to a straight line. All asphaltic surfaces, regardless of the thickness, shall be cut in neat, straight lines. The Contractor shall, at his expense, repair or replace all adjacent asphalt surfaces which have been damaged during excavation, or which have an irregular exposed face or edge due to improper removal of designated asphalt surfaces.

Add Item K as follows:

Provide full lane width restoration if 50% or more of the lane has been removed or damaged.

Longitudinal joints shall be located either at the edge or center of the lane and in no case in the vehicular wheel path. Length of surface repair parallel with traffic flow to be 20 feet minimum on collectors and arterials.

Subsection 3.10 Full Width Pavement Surface Restoration

Modify Item A as follows:

Replace “Standard Drawing SD-303” with “Twin Falls Standard Drawing TFSD-303”.

Subsection 3.11 Modified Full Width Restoration

Modify Item A as follows:

Replace “Standard Drawing SD-303” with “Twin Falls Standard Drawing TFSD-303”.

Replace “Standard Drawing SD-303A” with “Twin Falls Standard Drawing TFSD-303A”.

Section 308 – BORING AND JACKING

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Section 309 – HORIZONTAL DIRECTIONAL DRILLING

Subsection 1.5 Field Measurements

Modify Item B as follows:

Replace “4” with “24”

Division 300 – Standard Drawings

SD 301 – Typical Trench

Remove and replace drawing with TFSD 301.

SD 303 – Street Cuts and Surface Repair Details

Remove and replace drawing with TFSD 303.

SD 303A – Type “P” Alternate for Modified Full Width Surface Restoration

Remove and replace drawing with TFSD 303A.

SD 303B – Type “P” Alternate for Modified Full Width Surface Restoration

Remove and replace drawing with TFSD 303B.

SD 305 – Gravel Access Road Turnaround Detail

Remove and replace drawing with TFSD 305.

SD 306 – Utility Trench

Remove and replace drawing with TFSD 306.

SD 308 – Flowable Fill at Culvert Crossings

Remove and replace drawing with TFSD 308.

Division 400 – WATER

Section 401 – WATER PIPES AND FITTINGS

Subsection 2.1 Pipe and Fittings Size, Type and Strength

Add Item D as follows:

Unless otherwise approved by the City Engineer, water pipe diameter minimums shall be 12 inches on arterial streets, 10 inches on collector streets, and 8 inches everywhere else.

Subsection 2.2 Polyvinyl Chloride (PVC) Pipe and Fittings

Replace Item A.1 with the following:

Pressure Class: Minimum Pressure Rating is 165 psi.

Replace Item B.1 with the following:

Pressure Class: Minimum Pressure Rating is 165 psi.

Delete Item C.3

Subsection 2.5 Polyethylene Pipe and Fittings

Add the following to Item A: “to be used only with approval of the City Engineer.”

Subsection 2.6 Couplings

Add the following to Item A:

The Romac Style XR501 is an approved substitute.

Add the following to Item B:

The Ford UFA900-C-x Series is an approved substitute.

Subsection 2.9 Mechanical Restraint

Add the following to Item B:

The Romac GripRing™ Pipe Restrainer is an approved substitute. The Romac RomaGrip™ is an approved substitute only on ductile iron pipe.

Delete Item C and replace it with the following:

Application: Installation as an alternative to thrust blocks is to be only upon approval of the City Engineer based on service and installation conditions.

Subsection 3.1 Examinations

Modify Item C as follows:

Replace “48” with “36”.

Modify Item F as follows:

Replace “4” with “24”.

Subsection 3.2 Pipe Installation

Add the following to Item K:

All pipe shall be laid with the factory class marking visible in the upper one-third (1/3) of the pipe.

Add Item R as follows:

Install mechanical restraints per manufacturer’s recommendations.

Add Item S as follows:

Pressure testing approval required after water system is complete and before any improvements are constructed over the pipes.

Subsection 3.8 Pipe Markers

Delete Item A in its entirety and replace it with the following:

Furnish and install pipe markers at stub-outs per Twin Falls Standard Drawing TFSD-511A.

Subsection 3.9 Flushing and Disinfection

Delete the last sentence from Item D.1.

Subsection 3.10 Connections to Existing Mains

Add Item E as follows:

Tapping live lines to be completed by the City of Twin Falls Water Department. Licensed Contractors may only tap live lines when specifically authorized by the City of Twin Falls Water Superintendent on a case-by-case basis.

Subsection 3.11 Abandonment of Existing Mains

Add the following to Item B:

Abandoned pipe shall be capped.

Section 402 – HYDRAULIC VALVES

Subsection 2.2 Resilient Seated Gate Valves

Delete the following from Item A.1:

“or push-on joint”

Subsection 2.3 Butterfly Valves

Delete the following from Item A.1:

“or push-on joint”

Add the following Item A.10:

Use: Only to be used for water lines greater than 12” unless approved by City Engineer.

Subsection 2.4 Air Release, Air/Vacuum and Combination Air Valves

Delete Item A.4 and replace it with the following:

Standard Detail: Refer to Twin Falls Standard Drawing TFSD-408A
Combination Air Release / Vacuum Valve.

Subsection 2.7 Valve Boxes

Delete the following from Item A:

“, locking style”.

Modify Item E as follows:

Replace “Standard Drawing SD-406” with “Twin Falls Standard Drawing TFSD-406”.

Subsection 3.1 Examination

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.2 Installation

Modify Item B as follows:

Replace “Standard Drawing SD-406” with “Twin Falls Standard Drawing TFSD-406”.

Add Item G as follows:

Manholes and valve boxes shall be located by the Contractor prior to paving operations. The Contractor may remove risers to allow for easier paving. Upon completion of the paving operations, the Contractor shall again locate all manholes and valve boxes and use a circular cutter centered on the valve or manhole to remove plantmix pavement. After the pavement has been removed, the riser is replaced, and concrete is poured in place in accordance with the appropriate standard drawing.

Section 403 – HYDRANTS

Subsection 2.2 Fire Hydrant

Add the following to Item A after “ANSI/AWWA C 502”: “, American Flow Control 5 1/4" Waterous Pacer Fire Hydrant or approved substitution that contains a two-piece upper barrel 360-degree adjustable head”

Add the following to Item A.5: Contractor to provide and install 5” Storz quick coupling connection on pumper nozzle.

Subsection 2.3 Color

Delete Item A and replace with the following: Prepare and paint fire hydrants red with white caps.

Subsection 2.7 Drain Rock

Delete Item A and replace with the following: Drain Rock shall be a clean mixture free from organic or deleterious matter. It shall be washed and screened to meet the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
3"	100
1"	0

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Add Item F as follows:

The length of the hydrant service line from the point of connection with main (measured along the hydrant service line alignment) to the hydrant shall not exceed 150 feet.

Section 404 – WATER SERVICE LINE AND METERS

Subsection 1.4 Submittals

Delete Item B and replace it with the following:

Submit manufacturer’s certification that service pipe meets or exceeds specified requirements prior to installation.

Subsection 1.7 Meter Warranty and Operation and Maintenance Manual

Delete the entire subsection

Subsection 2.2 Service Pipe

Modify Item A.2 as follows:

Replace “DR 7” with “SDR 9”.

Delete Item A.3 and replace it with the following:

Dimension Basis: Copper Tube Size (CTS).

Modify Item A.4 as follows:

Delete “3350” and replace it with “2737”

Delete Item C in its entirety.

Subsection 2.3 Water Meter

Delete Item A and Item A.1 and replace them with the following:

City approved meter to be installed by the City of Twin Falls.

Subsection 2.4 Appurtenances

Delete the first sentence of Item A.1 and replace it with the following:

1” to 2” taps: Romac 202S or approved substitution.

Delete Item A.2.

Modify Item B.1 as follows:

Replace “Pack” with “Grip”.

Modify Item B.3 as follows:

Replace “Ford FB1101” with “FB1000-4-G-NL”.

Modify Item C.1 as follows:

Replace “Pack” with “Grip”.

Modify Item D.1 as follows:

Replace “pack” with “grip”.

Modify Item D.2 as follows:

Replace “Iron pipe size” with “Copper tube size”.

Delete Item D.4.

Modify Item D.5 as follows:

Replace “VHH92” with “VB74-18W-44-44-G-NL”.

Modify Item G.1 as follows:

Delete “3/4 inch to”

Delete Item G.1.a and replace with the following:

Size: See TFSD-401.

Delete Item G.1.b and replace with the following:

Product: RMB-13-24-18

Delete Item G.2.a and replace with the following:

Type: RMB-17-30-18

Delete Items H.1 – H.4 and replace with the following:

Type: RML-Poly-13×24-R-Lid or equal

Subsection 3.1 Examinations

Modify Item F as follows:

Replace “4” with “24”.

Add the following to the end of Item F as follows:

No service line shall be backfilled until it has been inspected by the Engineer for proper alignment, grade or other defect. Any backfilling prior to approval by the Engineer shall be removed by the Contractor at no additional cost to the Owner.

Subsection 4.1

Modify Item A as follows:

Delete “meter” from the list of included items.

Division 400 – Standard Drawings

SD 401 – Water Service Connection (3/4” – 1”)

Remove and replace drawing with TFSD 401.

SD 402 – Water Service Connection (1 1/2” – 2”)

Remove and replace drawing with TFSD 402 and TFSD 402A.

SD 404 – Fire Hydrant Detail

Remove and replace drawing with TFSD 404.

Add TFSD 404A – 2” Fire Line

Add TFSD 404B – Fire Line (4” or greater)

SD 406 – Valve Box and Lid Detail

Remove and replace drawing with TFSD 406.

SD 408 – Air Release / Vacuum Valve

Remove drawing.

SD 408A – Combination Air Release / Vacuum Valve

Remove and replace drawing with TFSD 408A.

Add TFSD 409 – 4” Water Meter Vault

Add TFSD 410 – 6” Water Meter Vault

Division 500 – SEWER

Section 501 – GRAVITY SEWERS

Subsection 2.1 Pipe Size, Type and Strength

Add the following to Item A:

Unless otherwise approved by the City Engineer, gravity sewer pipe diameter shall be a minimum of 8 inches.

Subsection 2.2 Gravity Sewer Pipe and Fittings

Delete Items C and D.

Delete Items F through H.

Delete the last sentence of Item J.1.

Subsection 2.3 Couplings for Dissimilar Pipe or Two Plain Ends of Similar Pipe

Delete Item C.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.2 Pipe Installation

Add Item U as follows:

Provide tracer wire and tracer wire marking posts for pipes which have a nonlinear alignment between manholes.

Add Item V as follows:

Sewer lines under permanent structures shall be C900 Class 150 PVC. These lines to be installed only with the expressed written approval of the City of Twin Falls City Engineer.

Subsection 3.3 Plugs and Pipe Markers

Delete Item A in its entirety and replace it with the following:

Furnish and install pipe markers at main line stub-outs per Twin Falls Standard Drawing TFSD-511A.

Subsection 3.4 Testing

Delete Item G.3.b in its entirety.

Delete Item H.2 and replace it with the following:

CCTV sewer line inspection to be performed by the City of Twin Falls. Notify the City at least 48 hours prior to CCTV inspection. City acceptance required prior to surface repair.

Delete Items H.8 through H.11.

Section 502 – MANHOLES

Subsection 2.2 Manholes

Add Item D as follows:

If groundwater is encountered, exterior of manhole to be coated with asphaltic emulsion.

Subsection 2.3 Steps

Delete Item A in its entirety and replace it with the following:

No steps allowed.

Subsection 2.4 Grade Rings

Modify Item A as follows:

Replace “3000” with “4000”.

Subsection 2.5 Frames and Covers

Modify Item A as follows:

Replace “Standard Drawings SD-507” with “Twin Falls Standard Drawings TFSD-507”.

Replace “SD-507A” with “TFSD-507A”.

Delete Item D.

Subsection 2.6 Collars

Modify Item A as follows:

Replace “3000” with “4000”.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.4 Connection of Sewer Lines to Existing Manholes

Modify Item E as follows:

Replace “Standard Drawing SD-508” with “Twin Falls Standard Drawing TFSD-508”.

Subsection 3.6 Manhole Invert Construction

Delete Item C and replace it with the following:

Construct the trough to a section identical with that of the lower half of the sewer pipe flowing through the manhole. At transitions of different pipe diameters, construct the trough to form a smooth transition.

Modify Item D as follows:

Replace “42” with “48”.

Modify Item E as follows:

Replace “42” with “48”.

Add the following Item G:

Unless otherwise shown, manholes shall have 0.1 feet fall from upstream invert(s) to downstream trunk invert.

Subsection 3.7 Manhole Barrel and Cone Construction

Modify Item B as follows:

Delete “non-shrink grout or”.

Modify Item C as follows:

Replace “21” with “12”.

Subsection 3.8 Placement of Grade Rings

Modify Item A as follows:

Replace “21” with “12”.

Delete Item B and replace it with the following:

Set grade rings on mastic (Ram-Nek or approved substitution). Apply non-shrink grout or mastic (Ram-Nek or approved substitution) between metal frame and the top grade ring.

Subsection 3.9 Installation of Steps

Delete Items A, B and C and replace them with the following:

No steps allowed. If prefabricated barrels come with holes for steps, fill them with grout.

Subsection 3.13 Placement of Concrete Collars

Modify Item A as follows:

Replace “Standard Drawing SD-508” with “Twin Falls Standard Drawing TFSD-508” and replace “3000” with “4000”.

Add Item E as follows:

Manholes and valve boxes shall be located by the Contractor prior to paving operations. The Contractor may remove risers to allow for easier paving. Upon completion of the paving operations, the Contractor shall again locate all manholes and valve boxes and use a circular cutter centered on the valve or manhole to remove plant mix pavement. After the pavement has been removed, the riser is replaced and concrete is poured in place in accordance with the appropriate standard drawing.

Subsection 3.14 Construction of Drop Manholes

Modify Item A as follows:

Replace “Standard Drawing SD-504” with “Twin Falls Standard Drawing TFSD-504”.

Modify Item B as follows:

Replace “3000” with “4000”.

Section 503 – CLEAN-OUTS

Delete Section 503 – Clean-outs in its entirety.

Section 504 – SEWER SERVICES

Subsection 2.2 Pipe and Fittings

Delete Item B.2.

Delete Item C.

Subsection 2.3 Service Line Markers

Delete Item A in its entirety and replace it with the following:

Mark service line ends with a steel T-style fence post. Refer to Twin Falls Standard Drawing TFSD-511A.

Subsection 3.1 Examinations

Modify Item A as follows:

Replace “Standard Drawing SD-306” with “Twin Falls Standard Drawing TFSD-306”.

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.2 General

Modify Item A as follows:

Replace “Standard Drawing SD-511” with “Twin Falls Standard Drawing TFSD-511”.

Replace “SD-511A” with “TFSD-511A”.

Subsection 3.4 Connection to Existing Manholes

Delete Items A, B and C and replace them with the following:

Not allowed.

Subsection 3.6 Installation of Service Line Markers

Delete Item A in its entirety and replace it with the following:

Install service line markers per Twin Falls Standard Drawing TFSD-511A.

Modify Item B as follows:

Replace “1 foot” with “2 feet”.

Delete Items D and E.

Section 505 – PRESSURE SEWERS

Subsection 2.8 Locating Wire Boxes

Modify Item C as follows:

Replace “3000” with “4000”.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Section 506 – PLASTIC LINERS

Subsection 3.1 Examinations

Modify Item C as follows:

Replace “4” with “24”.

Section 507 – SANITARY SEWER OPEN CUT REPAIR / REHABILITATION

Subsection 2.1 Pipe Size, Type and Strength

Modify Table 1 by removing all references to Vitrified Clay Pipe (VCP) as a replacement pipe option.

Subsection 2.2 Gravity Sewer Pipe and Fittings

Delete Items C, E, and F.

Subsection 3.2 Examinations

Modify Item A as follows:

Replace “4” with “24”.

Subsection 3.10 Rechannel Manhole

Modify Item B as follows:

Replace “Standard Drawing SD-502” with “Twin Falls Standard Drawing TFSD-502”.

Section 508– SLIPLINING

Subsection 3.2 Examinations

Modify Item A as follows:

Replace “4” with “24”.

Section 509– CIPP REHABILITATION

Subsection 3.2 Examinations

Modify Item A as follows:

Replace “4” with “24”.

Section 510– PIPE BURSTING

Subsection 3.2 Examinations

Modify Item A as follows:

Replace “4” with “24”.

Section 511– FOLD-N-FORM PIPE REHABILITATION

Subsection 3.2 Examinations/Preparation

Modify Item B as follows:

Replace “4” with “24”.

Section 512– SEWAGE BYPASS SYSTEMS

Subsection 3.1 Notifications / Permits

Replace Item B as follows:

Notify DIGLINE by calling 1-800-342-1585 or 811 at least two working days in advance of excavation in accordance with Idaho Law.

Subsection 3.2 Preparation / Demonstration

Modify Item H as follows:

Replace the phone number provided for IDEQ with (208) 736-2190.

Subsection 3.4 Monitoring

Modify Item D as follows:

Replace the phone number provided for IDEQ with (208) 736-2190.

Division 500 – Standard Drawings

SD 501 – Standard Manhole Type A

Remove and replace drawing with TFSD 501.

SD 501A – Standard Manhole Precast Base Type A

Remove and replace drawing with TFSD 501A.

SD 502 – Standard Manhole Type B

Remove and replace drawing with TFSD 502.

SD 503 – Standard Manhole Type B, Deep

Remove drawing.

SD 504 – Drop Manhole

Remove and replace drawing with TFSD 504.

SD 505 – Standard Shallow Manhole

Remove and replace drawing with TFSD 505.

SD 505A – Shallow Manhole Type 1

Remove drawing.

SD 506 – Standard 8” Traffic Rated Clean-out

Remove drawing.

SD 506A – Standard 4” Traffic Rated Clean-out

Remove drawing.

SD 506B – Bolt-down Cover Details – 4” Clean-outs

Remove drawing.

SD 506C – Bolt-down Cover Detail for Backwater Valve – 6” Dia.

Remove drawing.

SD 507 – Standard Manhole Cover and Frame

Remove and replace drawing with TFSD 507.

SD 507A – Manhole Cover and Flat Frame

Remove and replace drawing with TFSD 507A.

SD 508 – Manhole Collar

Remove and replace drawing with TFSD 508.

SD 509 – Plastic Coated Manhole Steps

Remove drawing.

SD 511 – Standard Sewer Service Line

Remove and replace drawing with TFSD 511.

SD 511A – Standard Sewer Service Connection for New Development Projects

Remove and replace drawing with TFSD 511A.

SD 511B – Standard Deep Sewer Service for Existing Development Type ‘J’

Remove drawing.

SD 512 – Standard Service Marker

Remove drawing.

Add Drawing TFSD-516 Grease Interceptor

Division 600 – CULVERTS, STORM DRAIN AND GRAVITY IRRIGATION

Section 601 – CULVERT, STORM DRAIN AND GRAVITY IRRIGATION PIPE

Subsection 2.1 Pipe Size, Type and Strength

Add the following to Item A:

Unless otherwise approved by the City Engineer, storm drain and irrigation pipe diameter shall be a minimum of 12 inches.

Add Item D:

Plastic pipe such as polyethylene (PE) or polyvinyl chloride (PVC) shall not be used with bare or headwall terminations where exposure to fire is possible or likely.

Subsection 2.2 Culvert, Storm Drain and Gravity Irrigation Pipe and Fittings

Delete Items D, F and G.

Add Item J.4 as follows:

To be used only with approval of the City Engineer.

Delete Item N in its entirety.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.3 Plugs and Pipe Markers

Delete Item B in its entirety and replace it with the following:

Furnish and install pipe markers at stub-outs per Twin Falls Standard Drawing TFSD-511A.

Section 602 – STORM DRAIN INLETS, CATCH BASINS, MANHOLES, AND GRAVITY IRRIGATION STRUCTURES

Subsection 1.2 Related Sections

Add Item I as follows:

Section 502 – Manholes

Subsection 2.4 Steps

Delete the subsection in its entirety and replace it with the following:

No steps allowed.

Subsection 2.5 Grade Rings, Frames, Grates and Covers

Modify Item B as follows:

Replace “3,000” with “4,000”.

Subsection 2.6 Collars

Modify Item A as follows:

Replace “3,000” with “4,000”.

Subsection 2.11 PVC Drainage Structures

Delete the subsection in its entirety.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”.

Subsection 3.7 Appurtenances Barrel or Box Construction

Delete the following from Item B:

“non-shrink grout or a”

Add Item C as follows:

Catch basins to be constructed to match the shape and elevation of the gutter flow line. Care shall be taken to ensure that all water will enter the catch basin.

Add Item D as follows:

The Contractor to install a flow gate at each pipe exiting from each irrigation box where required. Flow gates shall be installed according to the manufacturer's specifications and shall be easily operable from the top of the box.

Subsection 3.8 Jointing of Precast Sections

Delete Item B and replace it with the following:

Trim mastic flush with the inside wall of the manhole, inlet or catch basin.

Subsection 3.9 Placement of Grade Rings

Delete Item B and replace it with the following:

Install mastic material between grade rings.

Subsection 3.10 Installation of Steps

Delete the subsection in its entirety and replace it with the following:

No steps allowed.

Subsection 3.12 Placement of Concrete Collars

Add Item E as follows:

Manholes and valve boxes shall be located by the Contractor prior to paving operations. The Contractor may remove risers to allow for easier paving. Upon completion of the paving operations, the Contractor shall again locate all manholes and valve boxes and use a circular cutter centered on the valve or manhole to remove plantmix pavement. After the

pavement has been removed, the riser is replaced and concrete is poured in place in accordance with the appropriate standard drawing.

Subsection 3.14 PVC Drainage Structures

Delete the subsection in its entirety.

Division 600 – Standard Drawings

SD 602 – Inlet Catch Basin Type II

Remove and replace drawing with TFSD-602.

SD 611 – Standard Concrete Catch Manhole

Remove drawing.

SD 612 – Standard Manhole Type A

Remove drawing.

SD 613 – Standard Manhole Type B

Remove drawing.

SD 613A – Standard Manhole Type B – Raised Invert

Remove drawing.

SD 614 – Standard Manhole Type B, Deep

Remove drawing.

SD 614A – Standard Manhole Type B, Deep – Raised Invert

Remove drawing.

SD 616 – Manhole Collar

Remove drawing.

SD 617 – Standard Manhole Frame, Cover and Riser

Remove drawing.

SD 618 – Plastic Coated Manhole Steps

Remove drawing.

SD 619 – Standard Irrigation Box

Remove and replace with TFSD 619.

Division 700 – CONCRETE

Section 703 – CAST-IN-PLACE CONCRETE

Subsection 2.1 Concrete Materials

Modify Item B as follows:

Replace 0.6% with 0.8% Subsection 2.4 Concrete Mix

Modify Item D as follows:

Replace “3000F” with “4000”.

Subsection 3.5 Curing and Protection

Modify Item C as follows:

Delete “burlap or”.

Add Item F as follows:

Backfill shall not begin until the concrete has cured for 7 days unless approved by the Engineer. Backfill to be placed in accordance with Division 200.

Subsection 3.8 Defective Concrete

Delete Item A and replace with the following:

Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements; uncontrolled cracking; or a broken section. Acceptance of strength will be determined from the results of 28-day strength tests.

Section 705 – PORTLAND CEMENT CONCRETE PAVEMENT

Subsection 3.9 Protection and Opening Pavement to Traffic

Add the following to Item A:

Contractor to be responsible for the protection of fresh concrete against footprints, tracks, or any other objectionable marks. Repair and replacement to be determined at the discretion of the Engineer and at the expense of the Contractor.

Delete the following from Item C:

“Permit cars and pickup trucks 72 hours after placement unless directed otherwise by the Engineer.”

Add Item E as follows:

There shall be no vibrator rolling performed within fifty (50) feet of freshly poured concrete for a period not less than forty-eight (48) hours.

Section 706 – OTHER CONCRETE CONSTRUCTION

Add Subsection 1.6 Permits

Installation or relocation of approaches along the State of Idaho roadways must have approval and a permit from the State. When approaches fall within the City of Twin Falls limits, a right-of-way permit is required. Inspections are also required from the City of Twin Falls.

Subsection 2.4 Portland Cement Concrete

Modify the following in Table 1:

Replace “3000” with “4000” in the “28-day Compressive Strength (PSI)” column.

Replace “0.50” with “0.44” in the “Max. Water/Cement Ratio (LB/LB)” column.

Modify Item A.4 as follows:

Delete “3,000” and replace it with “4,000”.

Add Item A.5 as follows:

Decorative or colored concrete will be allowed within the right-of-way only by permission of the City of Twin Falls.

Add Item B as follows:

Concrete batch plants are to have National Ready Mix Concrete Association (NRMCA) certification and be on the Idaho Transportation Department's approved list.

Subsection 3.7 Joints

Replace Item A as follows:

Sidewalk and ADA ramp contraction joints shall be scored in a straight line having a width of one-eighth (1/8) inch and a depth of three-fourths (3/4) inch. All edges of sidewalk and joints shall be rounded with an edging tool, unless sawcutting is approved by the Engineer.

Curb & gutter and curb turn fillet contraction joints shall have a minimum depth of two (2) inches and a width of three-sixteenth (3/16) inch maximum and one-eighth (1/8) inch minimum. Joints shall be rounded with an edging tool, unless sawcutting is approved by the Engineer.

Subsection 3.8 Finishing

Add Item F as follows:

Tooled joints shall be formed around all appurtenances such as manholes, utility poles, hydrants, etc. extending into and through the sidewalk.

Add Item G as follows:

When brooming the surface of the concrete, the broom may be slightly dampened by dipping into water, then shaking off the majority of the water.

Subsection 3.9 Backfill

Delete Item A and replace it with the following:

Backfill up to 4 inches from top of concrete with materials equal to or better than the material that was removed. Compact to prevent settlement.

Subsection 3.10 Tolerances

Add Item E as follows:

Guidelines for determining concrete “failure” amounting to rejection of the work include the following:

Crack or fractures other than temperature cracks;
Cracks or fractures longer than 3”;
Displacements greater than ¼”; and
Missing concrete resulting from “scuffing” deeper or wider than 1”

Subsection 3.13 Standard Details

Delete Item A and replace it with the following:

Comply with approved Standard Drawings and City of Twin Falls Revisions to the Standard Drawings for other concrete construction unless otherwise detailed in the Contract Documents.

Subsection 4.1 Measurement and Payment

Delete Item F and replace it with the following:

Concrete Driveway Approaches: By the square yard or per each.

1. Bid Schedule Payment Reference: 706.4.1.F.1.
2. Bid Schedule Description: Concrete Driveway Approach...square yard (SY).
3. Bid Schedule Payment Reference: 706.4.1.F.3.
4. Bid Schedule Description: Concrete Driveway Approach...each (EA).

Division 700 – Standard Drawings

SD 701 – 6” Vertical Curb and Gutter

Remove and replace drawing with TFSD 701.

SD 701A – 6” Vertical Curb (No Gutter)

Remove and replace drawing with TFSD 701A.

SD 702 – 3” Rolled Curb and Gutter

Remove and replace with TFSD 702.

SD 703 – Curb and Gutter Type I

Remove drawing.

SD 704 – Curb and Gutter Type II

Remove and replace drawing with TFSD 704.

SD 705 – Curb and Gutter Type III

Remove drawing.

SD 706 – Curb Cut Detail for Curb Type III

Remove drawing.

SD 708 – Valley Gutter

Remove and replace with TFSD 708.

Add TFSD 708A – Curb Turn Fillet Approach

SD 709 – Concrete Sidewalk

Remove and replace with TFSD 709.

SD 709A – Curbside Mailbox Stand

Remove and replace with TFSD 709A.

Add TFSD 709B – Cluster Box Unit Detail

Add TFSD 709C – USPS Cluster Box Unit Detail

Add TFSD 709D – USPS Multi-Cluster Box Unit Detail

SD 710 – Concrete Driveway Approach

Remove and replace with TFSD 710.

SD 710A – Concrete Driveway Approach with Sidewalk around Approach

Remove and replace with TFSD 710A.

SD 710B – Concrete Driveway with Ramped Sidewalk

Remove and replace with TFSD 710B.

SD 710C – Concrete Driveway with Detached Sidewalk

Remove and replace with TFSD 710C.

SD 711 – Driveway Grade Standard

Remove and replace with TFSD 711.

SD 712 – Detectable Warning for Pedestrian Access

Remove and replace with Modified ITD-614 Standard Drawings.

SD 712A – Pedestrian Ramp Type “A” for New Development

Remove drawing.

SD 712C – Pedestrian Ramp Type “C” for New Development

Remove drawing.

SD 712D – Pedestrian Ramps Within Radius for Modifying Existing Corners

Remove drawing.

SD 712E – Pedestrian Ramps Outside Radius for Modifying Existing Corners

Remove drawing.

SD 712F – Pedestrian Ramp Type “F” for Existing Corners.

Remove drawing.

SD 712G – Pedestrian Ramp With No Landing

Remove drawing.

SD 714A – Concrete Pavement Jointing Details

Remove and replace with TFSD 714A.

Division 800 – AGGREGATES AND ASPHALT

Section 801 – UNCRUSHED AGGREGATE

Add Subsection 2.3 Aggregate Acceptance as follows:

Uncrushed aggregate for base acceptance tests will be performed at a frequency of 1 test per each 1000 tons. Test samples will be obtained in accordance with AASHTO T 2 from the materials delivered to the job site. Acceptance tests will include gradation and sand equivalency. Acceptance criteria are defined in subsection 2.1 and 2.2 of this section.

Subsection 3.4 Compaction

Delete Item A.4 and replace it with the following:

Perform one in-place density test per lift per lane per 300 linear feet of roadway or fraction thereof, but in no case, less than one test per 10,000 square feet per lift. Perform one in-place density test per lift for every 10,000 square feet of general fill and embankment area or fraction thereof. Refer to Section 202.3.8 for material moisture control and density acceptance requirements. If the specified density is not attained, the area shall be reworked and/or re-compacted until the density specifications are achieved and documented by additional testing or retesting at the designated frequencies.

Section 802 – CRUSHED AGGREGATES

Subsection 2.3 Aggregate Control

Add the following to Item B and Item C:

In no case, shall the allowed variation be outside the limits shown in Table 1 – Crushed Aggregate for Base Gradations.

Section 805 – ASPHALT

Subsection 2.1 Asphalt Cements

Delete Item B and replace it with the following:

PG 64-28 or better grade shall be used unless otherwise approved by the City Engineer.

Subsection 3.1 Application of Asphalt

Delete Item B and replace it with the following:

Remove asphalt from any surfaces that are discolored and restore to original or better condition.

Section 806 – ASPHALT TRACK COAT

Add Subsection 1.3 Submittals

Submit documentation substantiating the type, residual, dilution, if any, and volume of asphalt tack coat applied if required by the Engineer.

Subsection 2.1 Description

Modify Item A as follows:

Delete the first sentence and replace it with:

Asphalt to be CSS-1 or CSS-1h, except for chip seal projects, which is to be CRS-1, unless otherwise approved by the Engineer.

Subsection 3.3 Application of Tack Coat

Delete Item C and replace it with the following:

When diluted emulsified asphalt is used for tack coat, the dilution shall only be performed by the supplier, not the Contractor.

Add Item E as follows:

The tack coat spread rate should target the middle of the asphalt residual rate range as shown in the following table unless otherwise approved by the Engineer.

Surface Type	Asphalt Residual Rate (Gal/SY)	Emulsion Rate* (Gal/SY)	Diluted Emulsion Rate** 1:1 (Gal/SY)
New Asphalt	0.020 – 0.045	0.030 – 0.065	0.060 – 0.130
Existing Asphalt	0.040 – 0.070	0.060 – 0.105	0.120 – 0.210
Milled Surface	0.040 – 0.080	0.060 – 0.120	0.120 – 0.240
Portland Cement Concrete	0.030 – 0.050	0.045 – 0.075	0.090 – 0.150

*Emulsion rates assume a 33% water and 67% asphalt mixture.

**Diluted emulsion rates assume a 50% emulsion and 50% water mixture.

Contractor shall adjust the application rate as necessary to obtain the desired asphalt residual rate.

Section 807 – ASPHALT PRIME COAT

Subsection 2.1 Description

Delete Item A and replace it with the following:

Asphalt to be CRS, SS-1, or SS1-h unless otherwise specified in the contract.

Add Item D as follows:

Blotter to be sand or filter sand; refer to Table 1 in Section 801.

Section 808 – SEAL COAT

Delete the section in its entirety and replace with the separate City of Twin Falls Seal Coat Specification.

Section 809 – SURFACE TREATMENT

Add Subsection 2.3

Blotter to be sand or filter sand; refer to Table 1 in Section 801.

Section 810 – PLANT MIX PAVEMENT

Subsection 1.2 Related Sections

Add Item I as follows:

Section 402 – Hydraulic Valves

Add Item J as follows:

Section 502 – Manholes

Add Item K as follows:

Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures

Subsection 3.7 Spreading and Finishing

Add Item E as follows:

City Engineer or designated representative will determine if there are locations with segregation or an open graded surface. Contractor to chip or slurry seal areas where such defects occur at no additional cost to the owner. Logical termini of the chip or slurry to be determined by the Engineer.

Add Item F as follows:

At no time shall a pavement be laid in such a way as to either allow water to stand in puddles on the pavement or to prevent water from flowing off the pavement. If requested, at no additional cost to the owner, Contractor to provide full water truck and evaluate performance by drenching pavement prior to final acceptance.

Subsection 3.8 Joints

Delete Item E.4 and replace it with the following:

Transverse Wedge Milling – Start at the surface and continue into the adjoining pavement on a 200:1 slope or flatter in the longitudinal direction until a vertical edge equal to 0.21 foot is reached.

Longitudinal Wedge Milling – Start at curb at the desired inlay depth and continue into the adjoining pavement in the transverse direction without exceeding a 3% maximum finished grade cross slope on the road.

Add Item I as follows:

All pavement to pavement joints to be sealed with CSS-1 asphalt after paving is complete at a rate of 0.05 gallons per square yard.

Add Item J as follows:

Joints larger than 1/8" shall be crack sealed prior to sealing with CSS-1.

Subsection 3.10 Compaction

Add Item F as follows:

If Contractor proceeds with paving prior to the completion of compaction and smoothness requirements of the base or existing asphalt, they accept the responsibility for the outcome of their work. The Contractor shall verify that the base or other material is sufficient to achieve testing requirements. The Contractor shall notify in writing any concerns with the Engineer prior to paving.

Add Item G as follows:

Contractor shall use pneumatic rollers for intermediate rolling.

Subsection 3.12 Field Quality Acceptance

Delete the subsection in its entirety. For Field Quality Acceptance, see Section 814.

Subsection 3.13 Surface Smoothness

Add the following to Item A.3 as follows:

Surface variation not to exceed 0.25 inch when pulling a taut string line between 0 and 25 feet along the pavement either parallel or perpendicular to the centerline. Surface variation not to exceed 0.5 inch when pulling a taut string line between 25 and 50 feet along the pavement either parallel or perpendicular to the centerline.

Section 813 – FOG COAT

Delete the section in its entirety and replace with separate City of Twin Falls Seal Coat Specification.

Section 814 – PLANT MIX PAVEMENT PAY FACTOR

The City of Twin Falls adopts optional ISPWC Section 814.

Subsection 3.1 Testing Requirements:

Delete Item A and replace it with the following:

Contractor to pay for independent third-party testing per General Conditions and City of Twin Falls Revisions to Section 14.02.B.

Modify Item C as follows:

Delete “1” in the first sentence and replace it with “2”.

Add the following after the first sentence:

Testing agencies only need to use data obtained from their own samples, not those from other testing agencies for their calculations.

Delete Item 1.

Add the following to Item 3:

No additional cores shall be taken.

Modify Item 4 as follows: Replace the first sentence with “The City will generate the randomly determined location where cores will be taken.”

Replace Item 5 with the following:

All cores will be taken by the Contractor’s independent testing agency and evenly split between the Contractor’s independent testing agency and the City laboratory. If an odd number of cores are required, the extra will be tested by the Contractor’s independent testing agency. Coordinate with the City of Twin Falls Laboratory to deliver the cores. Results from both the Contractor’s independent testing agency and the City of Twin Falls Laboratory will be used to determine acceptance and the pay factor in accordance with this section.

Add the following to Item 6:

Core holes shall be filled with non-shrink grout.

Add Item 7 as follows:

When testing cores, they shall be cut straight in accordance with WAQTC.

Add the following to Item D:

If the core cannot be drilled because the location falls on a utility riser (manhole, water valve, PI valve, etc.), a new station location for the core shall be determined by adding or subtracting 10 feet to the station and retaining the same offset.

Add the following to Item E:

Do not over-condition the material by keeping the samples at an elevated temperature.

Add Item F:

In addition to other inspections and testing, a visual inspection may be used for all projects. The Engineer may direct additional cores(s) to be taken in locations that appear coarse or segregated. Any of these additional cores(s) will not be incorporated into the data set that determines acceptance and pay factor. If the in-place density from core(s) show the pavement falls below the minimum density standard, an area determined by the Engineer will be removed and replaced by the Contractor at no expense to the Owner.

Add Subsection 3.3 Acceptance for Superpave HMA SP-5 and SP-6:

- A. Superpave Hot Mix Asphalt Types SP-5 and SP-6 testing requirements to conform to ITD Specifications Section 405 – Superpave Hot Mix Asphalt. For these Superpave HMA types, third party testing agency to be determined by City and paid for by the City unless otherwise specified.

Test results must meet the requirements in the ITD Specifications.

Pavement may be subjected to the incentive/disincentive process outlined below.

A. Incentive / Disincentive Process

1. Calculation of Incentive/Disincentive Payment for SP-5 and SP-6 mixes
 - a. The Maximum Pay Factor will be 1.05. Material with an individual or combined Pay Factor less than 0.75 shall be rejected, removed, and replaced at no additional cost to the City.
 - b. A Pay Factor for Air Voids ($PF_{(AV)}$) will be computed using the above formula with the air voids quality level determined by Table 3 along with the number of test samples.
 - c. A Pay Factor for VMA ($PF_{(VMA)}$) will be determined by Table 3 and Table 4 using the VMA quality level and the number of samples.
 - d. A Pay Factor for Density ($PF_{(D)}$) will be determined by Table 3 and Table 4 using the core density quality level and the number of test cores.
 - e. Calculation of incentive/disincentive payment. The incentive/disincentive payment for all Superpave SP-5 and SP-6 Hot Mix Asphalt accepted by the Owner will be computed using the formula:
 - i. $B = (A) ((0.3*PF_{(AV)} + 0.3*PF_{(VMA)} + 0.4*PF_{(D)}) - 1) (Q)$
 - ii. B = Total incentive/disincentive payment for all Plant Mix Pavement accepted
 - iii. A = Unit Bid Price
 - iv. Q = Total Quantity of Plant Mix Pavement accepted

Section 815 – PLANT MIX PAVEMENT THICKNESS

The City of Twin Falls adopts optional ISPWC Section 815.

Division 800 – Standard Drawings

SD 801 – Typical Street Section

Remove and replace drawing with TFSD 801.

SD 802 – Typical Rural Street Section

Remove and replace drawing with TFSD 802.

SD 803 – Typical Paved Alley Section

Remove and replace drawing with TFSD 803.

SD 804 – Typical Graveled Alley Section

Remove and replace drawing with TFSD 804 – Standard Bike Path.

SD 805 – Standard Cul-de-sac

Remove and replace drawing with TFSD 805.

SD 806 – Typical Street Widening

Remove and replace drawing with TFSD 806.

SD 807 – Typical Commercial Driveway Approach

Remove drawing.

SD 808 – Typical Mailbox Turnout

Remove drawing.

SD 809 – Rural Driveway Approach

Remove drawing.

Division 900 – PRESSURE IRRIGATION

Section 901 – PRESSURE IRRIGATION PIPE AND FITTINGS

Subsection 2.1 Pipe and Fittings Size, Type and Strength

Add Item D as follows:

Unless otherwise approved by the City Engineer, pressurized irrigation pipe diameter minimums shall be 10 inches on arterial streets, 8 inches on collector streets, and 6 inches everywhere else.

Subsection 2.2 Polyvinyl Chloride (PVC) Pipe and Fittings

Delete the following from Item A.5:

“If used to convey Class A recycled municipal water, pipe”

and replace with:

“Pipe”

Delete Items C.1.d. and C.2.

Subsection 2.3 Ductile Iron Pipe and Fittings

Add the following as Item B.2:

“Usage: Only use above ground.”

Subsection 2.5 Polyethylene (PE) Pressure Pipe and Fittings

Modify Item A as follows:

Replace “Distribution” with “Transmission (ONLY)”.

Add the following as Item A.5:

Usage: With City Engineer written approval (ONLY).

Subsection 2.6 Steel Pipe and Fittings

Add the following as Item A.6:

Usage: Only use above ground.

Subsection 2.11 Locating Wire

Add the following as Item C:

Attach to top of pipe.

Subsection 3.1 Examinations

Modify Item F as follows:

Replace “4” with “24”

Subsection 3.2 Pipe Installation

Add the following to Item K:

All pipe shall be laid with the factory class marking visible in the upper one-third (1/3) of the pipe.

Add Item R as follows:

Install mechanical restraints per manufacturer’s recommendations.

Add Item S as follows:

Pressure testing approval required after water system is complete and before any improvements are constructed over the pipes.

Subsection 3.8 Pipe Markers

Delete Item A in its entirety and replace it with the following:

Install identification tape per TFSD-301.

Delete Item B in its entirety and replace it with the following:

Furnish and install pipe markers at stub-outs per Twin Falls Standard Drawing TFSD-511A.

Subsection 3.11 Abandonment of Existing Irrigation Mains

Delete Item D in its entirety and replace it with the following:

Cap or plug any abandoned pipe left in the ground utilizing an MJ Cap.

Section 902 – PRESSURE IRRIGATION VALVE

Subsection 2.2 Resilient Seated Gate Valves

Delete the subsection in its entirety and replace it with 402.2.2.A and City Revisions thereto.

Subsection 2.3 Butterfly Valves

Delete the subsection in its entirety and replace it with 402.2.3.A and City Revision thereto.

Application: Valves larger than 12 inches unless approved by the City Engineer.

Subsection 2.6 Valve Boxes

Delete the subsection in its entirety and replace it with the following:

- A. Size: Minimum 5-1/4 inch inside diameter
- B. Material: Cast Iron
- C. Adjustment: Adjustable with sufficient length for bury.
- D. Cover: Cast Iron stamped "Irrigation".
- E. Detail Standard Drawing TFSD-406.

Add Subsection 2.8 Blow-Off Assembly

Refer to Standard Drawings TFSD-903, TFSD-904, and TFSD-905.

Spacing requirements to be approved by the City Engineer.

Subsection 3.1 Examinations

Modify Item E as follows:

Replace “4” with “24”

Subsection 3.2 Installation

Add the following to Item B:

Set valve box centered and plumb over wrench nut and flush with ground or street surface. Install box per Standard Drawing TFSD-406.

Add Item G:

Manholes and valve boxes shall be located by the Contractor prior to paving operations. The Contractor may remove risers to allow for easier paving. Upon completion of the paving operations, the Contractor shall again locate all manholes and valve boxes and use a circular cutter centered on the valve or manhole to remove plantmix pavement. After the pavement has been removed, the riser is replaced, and concrete is poured in place in accordance with the appropriate standard drawing.

Section 903 – PRESSURE IRRIGATION SERVICE LINES AND APPURTENANCES

Subsection 1.3 References

Delete Item C.

Subsection 1.7 Ownership and Maintenance

Delete the subsection in its entirety and replace it with the following:

Pressure Irrigation stations, mainlines, and services to the union fitting (including the fitting) in the valve box (including the box) are owned and maintained by the City of Twin Falls Water Department unless specifically designated otherwise. All other pressure irrigation appurtenances beyond the union fitting in the valve box are privately owned and maintained.

Subsection 2.2 Service Pipe and Fittings

Delete Item A.

Modify Item B.1 as follows:

Replace “160” with “200”

Modify Item B.3 as follows:

Replace “Iron pipe” with “Copper Tube”

Subsection 2.3 Appurtenances

Delete Item B.

Delete Item E in its entirety and replace it with the following:

E. Service Valve Box

1. Size and Type: Minimum of 13” × 20” × 12” (L × W × D) HDPE Irrigation Box

Subsection 3.1 Examinations

Modify Item F as follows:

Replace “4” with “24”

Subsection 3.2 Installation

Add the following to Item B:

Service lines shall be less than or equal to 150 feet in length.

Modify Item E as follows:

Replace “SD-306” with “TF SD-306”

Add Section 904 – PRESSURE IRRIGATION STATIONS

This section applies to publicly owned infrastructure.

PART 1 – GENERAL

1.1 SCOPE OF WORK

A. Packaged Pumping Station

The packaged pump station supplier shall furnish a skid mounted pump station complete with all mechanical and electrical components as listed in the technical specifications. The pumping station shall include a UL 508A Listed control panel. The pump station shall meet the performance requirements outlined in the system technical specifications and be designed to span a wet well (the wet well design is site specific).

B. Factory Testing

The pump station shall undergo and pass all of the following system performance tests:

1. Hydrostatic Testing. The packaged pump station shall undergo hydrostatic testing that meets ANSI/HI specifications and standards.
2. Vibration Testing. The packaged pump station shall undergo vibration testing that meets ANSI/HI 9.6.4—Vibration Measurement and Allowable Values—specifications and standards.
3. Flow Testing. The packaged pump station shall undergo Hydraulic Performance Acceptance testing that meets ANSI/HI 14.6 specifications and standards.
4. Test Results. The results of all tests shall be available to the owner.

C. On-Site Pump Station Start-Up

Certified start-up and calibration shall be furnished by the Packaged Pump Station Manufacturer or their qualified service agent. Location and mounting details shall be furnished by the Packaged Pump Station Manufacturer.

The City Engineer for the City of Twin Falls or an authorized representative must be present to witness the station startup prior to acceptance of the station.

Technical start-up procedures by the pump station technician shall include the following:

1. Station start-up and pressurization.
2. Pressure, flow, and programming adjustments.
3. Monitoring of complete operational cycle when possible.
4. Testing of all alarms and fault conditions.
5. Customer training and the presentation of the station operation and maintenance manual.

D. Maintenance and Service

Furnish service and maintenance of pump station and accessories for one year from date of Start-up. Provide factory certified technician residing within 150 miles of pump station installation. Annual renewal of service and maintenance shall be available.

1. Spring start-up
2. 2 in season checks:
 - a. Check amp draw – all pumps
 - b. Check packing and grease
 - c. Check overloads for trip rating
 - d. Check circuit breakers for trip rating
 - e. Inspect and clean interior and exterior panels
 - f. Test all indicator lamps, bulbs
 - g. Test buttons, switches, selectors, etc.
 - h. Check safety of all electrical components
 - i. Inspect, tighten all electrical connections
 - j. Inspect and test all fuses and fuse holders
 - k. Inspect, test pressure transducers
 - l. Inspect, tighten any leaking joints and couplers.
 - m. Inspect, clean component filters
 - n. Test, adjust quick pressure relief valve
 - o. Test all electrical valves
 - p. Test all manual valves
 - q. Test, adjust high & low level switches
 - r. Test, adjust level sensor
 - s. Test, adjust low water float
 - t. Test pressure gauges
 - u. Inspect, flush discharge filter
 - v. Examine and test self-cleaning cw screen
3. Winterization

E. Warranty

The Manufacturer shall warrant that the packaged pump station shall be free from defects in material and workmanship for a period of twelve (12) months from the date of placing the Equipment in operation.

The motor control panel shall be covered under Warranty for an additional 3 years.

F. Operation and Maintenance Manual

Three operation and maintenance manuals shall be furnished at the time of start-up and initial training. The owner shall also receive training specific to the pump station.

Operation and maintenance instructions shall contain the following as a minimum:

1. Approved shop drawings and submittal data
2. Model, type, size and serial numbers of equipment furnished
3. Equipment and driver nameplate data
4. List of parts showing replacement numbers
5. Recommended list of spare parts
6. Complete operating instructions.
7. Service and Maintenance instructions and schedules including seasonal activation and shutdown, winterization, and blowout.
8. VFD parameter settings
9. Complete operator interface instructions with diagrams

1.2 MANUFACTURER QUALIFICATIONS

A. Single Source Responsibility

1. The entire pump station and the control panel shall be designed, assembled, programmed, and tested by a single UL QCZJ Listed Packaged Pump Station Manufacturer.

B. Safety Certifications

1. The pump station manufacturer must be a UL QCZJ listed pump station manufacturer, as well as a UL 508A Listed Control Panel Manufacturer.

C. Manufacturer Personnel

1. The Manufacturer shall employ service personnel who are trained and certified in every aspect of service that may be required on the pump station.

1.3 SUBMITTALS

A. Submittals shall be well organized, labeled, and presented in a professional manner. Sloppy or poorly presented submittals shall be rejected.

B. The pump station manufacturer shall submit the following items as part of a complete submittal package.

1. Shop drawings for pump station. Indicate general assembly, components, accurate dimensions, clearances and methods of assembly for complete pre-assembled pump station.
2. Technical data sheets for all major system components. Provide component and control system and complete wiring schematic, including the VFD, PLC and all control components. Provide manufacturer's literature including general pump assembly and pump curves showing performance characteristics with pump and system, operation point indicated, NPSH curve, controls, wiring diagrams and service connections and valves. Pump station manufacturer shall provide a list of at least 10 similar VFD pump station installations.

1.4 REFERENCES

A. Specifications refer to portions of the following standards:

1. NEMA – National Electrical Manufacturers Association
2. NEC – National Electrical Code
3. UL – Underwriters Laboratories, Inc.
4. AWWA – American Water Works Association
5. ANSI – American National Standards Institute
6. ANSI/HI – American National Standards Institute/Hydraulic Institute
7. ASTM – American Society of Testing & Materials

PART 2 – TECHNICAL SPECIFICATIONS

2.1 Onsite Conditions

- A. Intake Source: Suction Lift from a Wet Well.
- B. Electrical Input: 480V, 3 phase

2.2 System Type

- A. Non-potable Suction Lift Irrigation Station

2.3 Performance

- A. Design Point: Determined by Service Area Model

2.4 Pumps

- A. Duty Pumps
 1. Quantity: Minimum 2 installed (expandable to 4)
 2. Operation Mode: Lead-Lag. Duty pumps shall alternate lead-lag designations based on a user selectable alternation cycle to equal out run time on each pump.
 3. Type: Vertical Turbine
 4. Power: 30 HP each.
 5. Design Point Performance: Variable from 150 to 450 gpm per pump. With 2 installed pumps, variable from 150 to 900. (When expanded to 4 pumps, variable from 150 to 1800 gpm)

2.5 Sequence of Operation: Lead/Lag

The packaged pump station shall operate according to the following sequence of operation:

1. Lead Pump

A variable frequency drive (VFD) shall vary the Lead Pump speed as needed to maintain the system pressure setpoint.

The Lead Pump shall enter sleep mode as needed when the demand drops.

2. Lag Pumps

If demand exceeds the Lead Pump's capacity, then Lag Pump #1 shall start across-the-line, operating at full speed. The Lead pump shall continue to vary its speed as needed to maintain the system pressure setpoint.

If demand exceeds the Lead Pump and Lag Pump #1's capacity, then Lag Pump #2 shall start across the line, operating at full speed. The Lead pump shall continue to vary its speed as needed to maintain the system pressure setpoint.

If demand exceeds the Lead Pump, Lag Pump #1, and Lag Pump #2's capacity, then Lag Pump #3 shall start across the line, operating at full speed. The Lead pump shall continue to vary its speed as needed to maintain the system pressure setpoint.

The Lag Pumps shall enter sleep mode, one at a time, as demand decreases and the remaining Pump(s) can meet demand.

3. Lead-Lag Designation

Lead selection of equal horsepower pumps shall be accomplished by total accumulated pump running time. Unless manually overridden, the next available pump shall be the next pump started in the sequence. Internal VFD alternating logic for selection of lead pump shall not be accepted.

If enabled, the lead pump shall alternate to the next available pump in the event the lead pump cannot operate.

The duty pumps shall alternate lead-lag designations based on a user selectable alternation cycle to equal out run time on each pumps.

See section 3.5 C 2 for more information about pump settings and PLC Control Functions.

2.6 System Protections

The pump station shall include the following system protections:

1. Selectable Low Flow Shutdown and Low Flow Sleep Mode
2. High Discharge Pressure Shutdown
3. Low Water Level Pump Slowdown
4. Low Water Level Shutdown
5. Individual Motor/Phase Loss
6. Electrical System Protections as described in Section 3.5.

PART 3 – PRODUCTS

3.1 Pumps and Motors

The pumps shall meet the following design specifications:

A. Vertical Turbine Pumps

1. Bowl Assembly

The bowl assembly—including suction case, intermediate bowls, and discharge bowls—shall be of Class 30 cast iron. The impellers shall be of stainless steel or bronze, statically balanced. Impellers shall be adjusted vertically by means of an adjusting nut located at the top of the driver. The pump shaft shall be supported by bearings above and below each impeller. The size of each shaft shall be appropriate to transmit the horsepower required by the pump.

2. Inlet Strainer

Each turbine pump inlet strainer shall be corrosion-resistant basket type with an area not less than four times the pump suction bell inlet area.

3. Discharge Column Pipe

The discharge column pipe shall be A53 Grade B sch 40 steel and furnished in interchangeable 10' sections with threaded couplings. The line shafts shall be ground and polished 416 stainless steel, and shall be coupled with steel couplings, have left hand threads, which tighten during operation. Drop-in type shaft centering spiders shall be provided at each column coupling at maximum 10' spacing. The section of shaft passing through the stuffing box shall be stainless steel having a

chromium content of not less than 12%. Pumps shall be manufactured by Goulds or approved equal.

4. Discharge Heads

Each pump shall be supplied with a CAST IRON discharge head having a flanged discharge opening. The top diameter of the discharge head shall match the motor base to distribute the load uniformly. The minimum operating pressure of each discharge head shall be no less than 30% higher than the maximum output pressure of the pump. The CAST IRON discharge head will have a tensile strength of 65,000 PSI.

5. Column Pipe

Column pipe should be A53, Grade B schedule 40 material, in interchangeable sections not more than 10 feet in length. Pump line shaft shall be AISI 416 SS. The size of the shaft shall be no less than determined by ANSI specification B58.1, Section 4.2, Table 4. Bearing retainers shall be bronze with rubber bearings.

B. Vertical Turbine Pump Motor

1. Each pump driving motor shall be squirrel cage induction vertical hollow-shaft type. The connection to the pump shaft shall be bolted-down type couplings in the motor. The temperature rise of the motor shall be to NEMA standard MG-1-12. Motors to be Inverter Duty, High Efficient with Class F installation. A thrust bearing of ample capacity to carry the weight of all rotating parts plus the hydraulic thrust of the pump shall be incorporated into the motor. The bearings shall be B10 rating with average life no less than five years continuous operation. The motor shall be of proper size to drive the pump at any point on the operation curve without exceeding the percent of the motor horsepower nameplate rating as called out in the Technical Specifications.
2. VHS MOTOR WINDING CONDENSATE HEATER
Each VHS pump motor will be supplied with a 120 volt space heater in the motor windings to prevent condensation during non-use times. The heaters will be deactivated while the motors are running.

3.2 Mechanical Components

A. Pump Station Enclosure

1. The pump station enclosure shall be built out of marine grade aluminum. Enclosure shall consist of a frame built out of structural folded aluminum. Frame shall be built to readily accept foil faced insulation. Aluminum panels to be mounted to enclosure frame with pan head torx tamper resistant stainless steel screws. Enclosure shall consist of 2 hinged, lockable entry doors. Enclosure shall consist of a roll-away removable roof that shall be sloped to prevent moisture build up.
2. The enclosure shall include a ventilation fan (or fans) that will adequately cool all of the enclosed equipment during the most extreme expected seasonal temperatures.

B. Pump Station Skid

1. The entire pump station shall be manufactured and tested in the controlled environment of a manufacturing facility. No on site fabrication or assembly shall be acceptable.
2. The pump skid shall be constructed of 3/8 inch steel plate per ASTM A36.
3. Steel plate shall be press brake formed with minimum riser height of 6 inches. Welded bases or open rail systems shall not be acceptable.
4. All bolts, washers, nuts and fasteners used in the assembly of the packaged pump station shall be stainless steel, zinc or cadmium plated to retard corrosion.
5. The Pump Skid shall be designed and constructed with adequate supports to free span a wet well opening of 8 ft. (See attached Preliminary Construction Drawing for proposed wet well dimensions.)
6. All components shall be mounted to the skid in professional workmanlike manner.

C. Piping and Fittings

1. All piping and fittings supports shall be constructed of ASTM A53 pipe with a Class D pressure rating fittings. Threaded connections in the piping network shall not be acceptable.
2. Pipe supports shall be mild steel.

D. Grooved Couplings

1. Grooved couplers shall be ductile iron conforming to ASTM A 536, Grade 65-45-12. Connecting bolts shall be heat treated, oval neck track head bolts conforming to ASTM A 183 Grade 2 with heavy hex nuts of carbon steel conforming to ASTM A 563 Grade A or Grade B. Bolts and nuts shall be zinc electroplated.

E. Flanges

1. All welded flanges shall be Class D forged steel slip-on or weld neck type. All welded fittings shall be seamless, conforming to ASTM Specification A234, with pressure rating not less than 150 PSI.

F. Powder Coating

1. **All piping, fittings, station skid, and enclosure shall be powder coated according to the following specifications:**

2. **Testing**

- i. Prior to coating, all welded assemblies shall be leak tested. No welding shall be performed after the pump station is powder coated.

3. **Preparation**

- i. All surfaces of the skid base shall be prepared per SSPC-SP10, near white metal blast.

4. **Surface Coating**

- i. All surfaces of the skid shall be powder coated using an epoxy fusion-bonded coating with a minimum thickness of 5 mils.

3.3 Valves

The packaged pump station shall include the following valves:

A. Butterfly Isolation Valves

1. Grooved Valves

- a. Body: ASTM A-536 Ductile Iron
 - b. Disc: ASTM A-536 Ductile Iron, with EPDM or NBR coating
 - c. Upper and Lower Shafts: ASTM A-276 Stainless Steel
 - d. Operator: lever handle or gear operator, with 10 position indicator

- e. Pressure Ratings: 300 psi
- 2. Flanged Valves
 - a. Body: ASTM A-536 Ductile Iron
 - b. Disc: ASTM A-536 Ductile Iron, with EPDM or NBR coating
 - c. Upper and Lower Shafts: 316 Stainless Steel
 - d. Operator: lever handle or gear operator, with 10 position indicator
 - e. Pressure Ratings: 250 psi
 - f. Flange Standard: ASME Class 125/150
 - g. Flanged butterfly valves shall be Grinnell Series 8000, or approved equal.
- 3. Valve Operators
 - a. For valves 6" and under, valve operators shall be lever style.
 - b. Valves 8" and larger shall be equipped with manual gear operators.
 - c. Each operator shall have a 10 position indicator.
- 4. Isolation valves shall be located on the discharge of each pump to isolate pumps in case the pump requires removal for service and an isolation valve on the discharge of the station to isolate the entire system.

B. Check Valves

- 1. Pump Discharge Assembly Check Valves
 - a. A spring-loaded non-slam type check valve shall be installed on the discharge of each pump. The valve shall be wafer style type fitted between two flanges. The head loss through the check valve shall not exceed 5 PSI at the pump design capacity. Check valves shall be Val-Matic 1400A series or approved equal.
- 2. Filter Check Valve
 - a. A spring-loaded check valve shall be installed on the outlet of the automatic filter.

- b. The filter check valve shall be constructed of the following materials: Body: Cast Iron ASTM A126B; Trim Material: 316 SS – Spring; Disc Material: Nickel Plated Ductile Iron; Seal Material: EPDM;
- c. The filter check valve shall have a working pressure of 200 psi.

C. Air Relief Valves

- 1. The pump station shall include continuous acting air relief valves on the discharge manifold, as well as each main pump discharge. The air relief valve shall continuously discharge entrapped air in the system, and shall be constructed of a cast iron body with stainless steel float and trim. Air relief shall be manufactured by Val-Matic or approved equal.

D. Pressure Relief Valve

- 1. Function
 - a. The valve shall protect the piping network by bypassing or relieving excess pressure and shall maintain close pressure limits without causing surges. All water discharged from the pressure relief shall be directed back into the wet well. If upstream pressure decreases below the spring setting, the valve shall close.
- 2. Model and Manufacturer
 - a. The valve shall be a Cla-Val Co. Model No. 50-01/650-01 Pressure Relief and Pressure Sustaining Valve as manufactured by Cla-Val, or approved equal.

E. Intake Screen Supply Valve

- 1. Automatically controlled solenoid valve to supply water to the wet well intake screen cleaning device.

3.4 Water Filtration

A. The pump station shall include an automatic discharge filter.

- 1. Filter must be sized to provide maximum pump station flow.
- 2. The filter element must be capable down to 300 microns.

3. The filter shall automatically remove debris from the interior of the filter element whenever there is a pressure differential of approximately 7 PSI between the intake and discharge of the filter.
4. Pressure gauges shall be located on the inlet and outlet sides of the filter.
5. An automatic flushing interval function shall be incorporated allowing user adjustable flush delays.
6. The filter shall include electric motor that shall be operated by the programmable control system.
7. Multiple filters controlled by the programmable control system must be flushed sequentially.
8. The filter cleaning device shall be suction scanner type that shall suck debris from a minimum of 98% of the total filtration area. At no time during the flushing operation shall waste water exceed 1% of the total system flow rate.
9. During the flush cycle, the pump station shall continue to provide filtered water.
10. PLC monitoring function shall be used to indicate limit and PSID switch failures.
11. Automation of the Automatic Discharge Filter(s) shall be incorporated into the pump station PLC. Use of a separate controller is not acceptable. Pump station manufacturer shall be authorized by Amiad to perform filter automation sequences and must have a minimum of 5 years prior experience and at least 10 functioning pump stations utilizing filter automation.
12. Automatic Discharge Filter(s) shall be AMIAD Model SAF series, or equal.

B. Lake Intake Screen Supply Valve and Controls

1. The pump station shall include automatic inlet screen valve controls.
2. Controls shall have a method to manually test the valve.
3. Automatic controls shall include an interval function to shut off the valve for a user adjustable time allowing the system to detect a period of low usage.

C. Intake Screen

1. A Clemons Clearwater self-cleaning intake screen or equivalent shall be provided to the contractor responsible for installing the wet well and intake structure.

2. The intake screen shall be a Model CW2400 with 24 mesh stainless steel screen and a sealed, heavy duty, bearing for horizontal installation.
3. The intake screen shall be modified in such a way that the standard flanged outlet is removed and replaced by a model 7042 water tight half coupler. The water tight half coupler shall be sized such that it is compatible with the outside diameter of the wet well intake pipe. Intake pipe size shall be verified and coordinated with Owner's irrigation foundation contractor.

3.5 Motor Control Panel (MCP)

The control panel shall be designed, manufactured, programmed, and tested by the Packaged Pump Manufacturer. The Motor Control Panel shall include the following features:

A. General Features:

1. Panel Construction
 - a. The pumping station electrical controls shall be mounted in a self-containing NEMA 12 rated enclosure fabricated from not less than 12 gauge steel. Door gasket seals shall be neoprene sponge, sufficient to protect interior components from weather and dust. The electrical panel doors shall be constructed from 12 gauge steel with integral latches. The MCP shall be NEMA 12 rated enclosure.
2. External Operating Devices and Internal Components
 - a. All external operating devices shall be dustproof and weatherproof. All internal components of the enclosure shall be mounted on a removable back panel. Mounting screws for components shall not be tapped into the enclosure wall. No pressure gauges, pressure switches, water activated devices, or water lines of any sort shall be installed in any electrical control panel.
3. MCP Temperature Regulation
 - a. Pump control panel cooling shall be provided and sized to the local maximum ambient conditions, plus component cooling requirements. Cooling should be sized such that internal panel temperature does not exceed 104F. Cooling shall conform to NEMA 12 filter fan forced cooling. Filters must be utilized to keep the enclosure free of contaminants. At least two sets of spare filters shall be provided.

4. VFD Status Indicator
 - a. VFD status and internal parameters must be viewable without the opening of the enclosure door.
5. Control Panel Manufacturing
 - a. The control panel shall be designed, built, tested, and UL 508A listed by the pump station manufacturer.
 - b. The control panel shall be UL labeled as an "Enclosed Industrial Control Panel".
 - c. The pump control panel shall be completely manufactured, tested and programmed prior to delivery to the job site.
6. Control Panel Information
 - a. The following shall be permanently affixed to the inside of the control panel enclosure:
 - i. A full-color, diagrammatic wiring schematic.
 - ii. Pump and motor nameplate information.
 - iii. Factory calibrated control setpoints.
7. Service Rated Main Disconnect
 - a. A three-pole, main station disconnect shall be contained within the NEMA 12 control enclosure. The disconnect shall be non-fused and isolate all power to the control enclosure. The disconnect shall have an operating handle mounted in the enclosure door, mechanically interlocked to prevent entry while disconnect is in the ON position. The disconnect shall be UL98 Service Rated.
8. Motor Circuitry Protection
 - a. Each motor shall be protected by a combination starter and thermal magnetic circuit breaker. Circuit breaker shall be UL 489 rated. Motor starter shall be electrically and mechanically interlocked. All starters shall be suitable for use in group installation applications according to NEC-430-53(c).
9. Control Transformer
 - a. The control transformer shall provide 24 VDC power to the pump station controls. The control transformer shall be protected on primary side with appropriately sized fuses. Secondary side shall be protected by a group of supplementary miniature circuit breakers.

10. Surge Protection

- a. A surge protector shall incorporate a single, heavy duty, distribution grade Metal Oxide Varistor (MOV) disk, assembled under pressure in an environmentally sealed aluminum casing.
- b. Surge suppressor shall meet or exceed the following criteria: Minimum nominal discharge capacity of 20,000 amperes per phase, Response time of 1ns. Suppressors shall consist of solid-state components and operate bi-directionally. Minimum continuous operating voltage of the suppressor shall be 700VAC or greater.
- c. Surge suppressor model shall be Strikesorb model 30-C or 30-D manufactured by Raycap.

11. Secondary Control Circuit Breakers

- a. Single-pole secondary distribution breakers with appropriate ratings shall supply power to each pump starter coil circuit, the control system, and to other circuits as specified.

12. Main Panel Power and Motor Phase Monitor

- a. The incoming power and each motor shall be protected by a phase loss/low voltage system dropout relay to de-energize the pump station control circuit or motor contactor if a phase failure, phase reversal, or low voltage condition occurs. If after attempted automatic re-starts the phase failure/low voltage alarm condition remains, the alarm must be manually reset. Individual motor overloads shall also act as phase monitors for each motor.
- b. The Voltage Monitor shall be model ICM455 as manufactured by ICM Controls, or approved equal.

13. Harmonic Filter

- a. The MCP shall be equipped with a passive harmonic filter that ensures the MCP meets IEEE-519 requirements for harmonic current. The total harmonic current distortion shall be 8% at 30% load, and 5% max at full load. The harmonic filter efficiency range shall be 97% - 99%.
- b. The harmonic filter shall be manufactured by MTE Corporation, or approved equal.

B. Variable Frequency Drives (VFDs)

1. The VFDs shall be appropriately sized to meet the FLA, full load amps, required by the pump motor as stated on the motor nameplate.

2. The control panel shall be equipped variable frequency drives (VFD) on all pumps & motors. VFD shall be isolated from main input power by use of a contactor to protect the VFD from power outside of tolerances.
3. The variable frequency drive shall be IGBT based with selectable carrier frequency up to 15 KHZ. The VFD shall include terminals for incoming power, motor output power and control terminals. All VFDs shall include an RS485 port built-in to the VFD for dedicated communication to the PLC.
4. The VFD shall generate a sine-coded, variable voltage/ frequency, three phase output for optimum speed control. The VFD shall incorporate power loss ride- through for a minimum of 2 seconds. VFD protective features shall include current limit, auto restart, short circuit protection, electronic motor overload protection, and ground fault protection. The VFD shall have a push button programming display for easy access to operation parameters. The VFD shall be protected on the primary side by a breaker of the appropriate amperage.
 - a. Overload capacity: 120% rated output current for one minute.
 - b. Voltage Fluctuation: +10%, -15%.
 - c. Sine wave, PWM, with full range, and automatic torque boost.
 - d. Frequency Control Range: 0.5 to 500Hz.
 - e. Frequency Accuracy: Digital, 0.01Hz, Analog, .1%.
Motor overload protection, Instantaneous over current of 180% of rated output current.
 - f. Over voltage at 820VDC if 460V input.
 - g. Under voltage: user-adjustable.
 - h. Momentary Power Loss: up to 2 second ride through.
 - i. Electronic Ground Fault.
 - j. LED capacitor charge indicator.
 - k. Input Phase loss alarm.
 - l. Ambient temperature range of 0 to 50 degrees C.
 - m. Humidity of 95% non- condensing.
5. VFDs shall be ACS550 series manufactured by ABB, or an approved equal.

C. Programmable Logic Controller (PLC)

1. PLC Operator Interface

a. Hardware

- i. Operator interface shall be used for a logical display of all pump station functions.
- ii. Operator interface shall be a full color LCD Display unit mounted in the control panel door.
- iii. The operator interface shall be NEMA 4 rated.
- iv. The operator interface shall be touch sensitive with intuitive on-screen user instruction for ease of operator use. The use of buttons or keys or off-screen user instructions shall not be permitted.
- v. The operator interface shall be color TFT LCD display type with no less than 800 x 600 pixel resolution, with viewing area measuring not less than 8" diagonal.
- vi. Interface shall have the following data ports:
 1. 1 RJ-45 Ethernet port
 2. 2 USB Ports: 1 Type A & 1 Type B Mini.
- vii. Memory Storage Capacity:
 1. Operator interface shall be capable of holding up to one year of critical pump operation data.

b. The PLC shall be an Allen Bradley 1400, or approved equal.

- i. The Owner owns software to program Allen Bradley PLC's. If a PLC other than an Allen Bradley is submitted as an equal, the alternate PLC shall include software and the software license that will allow the owner to edit the PLC program.

2. PLC Functions

The PLC and Operator Interface shall include, but are not limited to, the following monitoring and control functions:

a. Monitoring Functions

The PLC shall provide the following user monitoring functions:

- i. Overview Screen

1. Pump status, including lead pump designation, VFD frequency, and current draw.
 2. Alarm conditions, with the ability to manually reset alarms.
 3. Current values of all system sensors, including pressure and flow.
- ii. Fault Log
1. The PLC shall have a system fault log that displays the precise times of fault occurrences and recoveries, as well as message indicating the fault type.
 2. The fault log shall include a fault diagnosis utility that provides possible causes of and solutions to all system faults and warnings.
- iii. Trend Log
1. Trend graphing screen capable of detailing pressure, flow, and current data.
 2. Graphing function shall give the option to graph and plot a point at user adjustable intervals.
 3. All data shall be capable of being logged and downloaded to a USB drive, and allow an operator to upload the data to a spreadsheet type program.
- b. Control Functions
- i. Pressure Settings
- Pressure Settings shall include the following:
1. Pressure transmitter calibration, discharge pressure setpoint, and high and low pressure alarm conditions.
- ii. Flow Settings
1. Flow Settings shall include the following:
 2. A display of total gallons pumped with user reset button and time/date stamp of last reset.
 3. Low and High Flow Alarm Conditions.
 4. Flow meter sensor calibration settings.

- iii. Pump Settings
 - 1. Pump detail screens showing total run hours of each pump since last reset and any modes, options, or functions specific to that pump.
 - 2. Pump sleep settings.
 - a. The pump shall enter sleep mode via user adjustable settings based on either of two thresholds: VFD frequency or system flow. The user shall also be able to adjust the sleep delay mode. The pump shall enter operating mode when the system pressure reaches a user adjustable “Wake-Up” pressure setting.
 - 3. Pump Lead-Lag settings.
 - a. Lag Start and Stop Settings shall be user adjustable, with two different start and stop thresholds:
 - i. Lead VFD Frequency, and
 - ii. System pressure setpoint deviation (starting)/flow (stopping).
- iv. Pre-programmed Start-Up Routines
 - 1. The PLC shall be programmed with various start-up routines that limit and/or delay the starting and acceleration of the pump—ensuring that excessive velocity and pressure do not damage the distribution system.
 - 2. The program shall include individual routines for initial start-up, mainline fill, re-start after a power outage, and re-start after a system fault.
 - 3. The operator shall be able to adjust the timing of the routines via the operator interface.

- v. Password Protection
 - 1. The PLC shall have a password protection ability.
- vi. Loading and Saving System Default Settings
 - 1. The system shall allow the operator to Load Factory Default PLC settings, Save New Operator settings, and Load previously saved Operator PLC settings.
- vii. System Data and Time
 - 1. The PLC shall allow the operator to change the system date and time.
- viii. Intake screen cleaning
 - 1. The PLC shall control intake screen cleaning and cleaning interval.
 - 2. The cleaning interval shall be selectable between a timed interval or an interval based on gallons pumped.
 - 3. The PLC shall allow the operator to adjust the interval parameters and switch between automatic and manual cleaning modes.
- ix. System Protections
 - 1. The PLC shall have the following user adjustable system protections:
 - a. Low Flow Shutdown

The PLC shall automatically shut down the system if there is no, or too little flow, based on signals received from a flow switch. The low flow shutdown shall have a user adjustable time delay.
 - b. High Discharge Pressure Shutdown

In addition to the pressure data received from the pressure transmitter, the PLC shall automatically shut-down the system based on signals from a high pressure switch.

- c. Low Water Level Pump slowdown. The PLC shall read water level in sump. If levels in sump drop and approach the Low Level Shutdown setpoint, the PLC shall activate intake screen cleaning mode. If sump levels continue to drop, the PLC shall lower the discharge setpoint (pressure/flowrate) as needed to prevent the sump from reaching the Low Level Shutdown setpoint. As water levels in sump increase, the PLC shall increase set point back to normal and return intake screen cleaning to interval control. The PID activation shall be user adjustable.
- d. Low Water Level Shutdown
The PLC shall automatically shut-down the system based on low level signals from a low water switch.
- e. Electrical Fault Shutdowns
 - i. Incoming power high, low, and imbalance limits in addition to shut down and restart time delays shall be user-adjustable.
 - ii. Analog transmitter failure. Input levels of all connected transmitters and meters shall be monitored for failures.
 - iii. Motor starter failure. Circuit breaker and/or motor overload contacts shall be monitored to indicate a motor failure.
 - iv. VFD Fault.

- v. Phase protection: a phase failure or low voltage safety circuit shall shut the system down in the event of either condition on the line side of the pump starter. Each pump shall have its individual protective device and time delay to allow maximum motor protection during motor starting.
 - vi. Optional Alarms for Custom Sensors as defined in the Technical Specifications.
 - 2. The controls shall attempt to restart the system after alarm shutdown or loss of power to minimize loss of irrigation. After a user-adjustable number of attempts to re-pressurize the system, the controls shall go into hard shut down and remain there until manually reset.
- 3. PLC User Guide

The pump station manufacturer shall supply an owner's manual in digital form that includes graphic images of all touch screens with explanations of all settings and modes.
- 4. PLC Program

The pump station manufacturer shall provide an editable electronic copy of the program installed on the Pump Station PLC.

3.6 Sensors, Switches, and Gauges

The packaged pump station shall include the following sensors, switches, and gauges:

A. Magnetic Flow Meter

1. The pump station shall include a magnetic flow meter. By using the system operator interface, an operator shall have access to flow meter data—including current flow rates and total gallons pumped—as well as adjustable settings for flow meter calibration and system flow fault setpoints.
2. The flow meter shall be electromagnetic design comprising of two major components, a primary head and a signal converter. The meter head shall incorporate a straight-thru flow design with no moving parts or pressure loss, low maintenance, and high accuracy.
3. The flow meter shall be constructed of the following materials: Body: Welded steel, epoxy-coated; Liner: dual durometer rubber; Electronics Housing: powder coated diecast aluminum; Electrodes: 316 Stainless Steel. It shall be rated NEMA 4X, have a working pressure of 150 psi, and an operating temperature range between 10° –130° F.
4. The flow meter signal converter shall produce a pulse signal output in linear proportion to the flow rate.
5. Flow meter shall read flows from 0 to full design flow. Accuracy shall be +/-1% of reading for flow between 10% and 100% of max flow and +/-2% of reading for flow from cutoff to 10% of max flow.
6. Flow meter shall be externally powered with battery backup in case of power failure.
7. Meter shall be installed according to manufacturer straight pipe requirements.
8. The meter shall be fully tested during the pump station full run performance testing while at the factory prior to shipment. The magnetic flow sensor on the pump station shall be calibrated against a master meter.
9. The flow meter shall be Seametrics AG2000, or approved equal.

B. Pressure Gauges

1. Pressure gauges shall have a 304 stainless steel case, with bezel construction. Gauges shall have a 2.5" diameter, liquid filled. Pressure sensing connection shall be 1/4" NPT lower gauge connection.

C. Pressure Transmitters

1. The station shall have pressure transmitters to continually monitor system pressure.
2. The pressure transmitters shall provide noise free, linear output that is proportional to pressure. Transmitter shall be solid-state, strain gauge type with integral voltage regulation and output accuracy not less than 0.4%. Transmitter shall be constructed of stainless steel and rated for the pump station discharge pressure called out in the technical specifications.
3. The pressure transmitter shall be manufactured by IFM or approved equal.

D. Low Intake Water Switch

1. The pumping system shall be equipped with a safety switch to shut off the system if the water supply for the pump station is insufficient. The switch shall work in conjunction with the PLC (programmable logic controller). In the event that the supply drops below a safe operating level, the PLC will shut down the pump system. The PLC shall be programmed to attempt to restart the pumping system two times. If after two attempts the water supply is still too low, the system will require a manual reset.

E. PID Sump Level Sensor

1. The system shall be equipped with a liquid level transmitter in the sump to measure water level.

3.7 Wiring

- A. All wiring shall conform to NEC standards, as well as UL 508A Panel standards.

PART 4 – WORKMANSHIP

4.1 Examinations

1. The design engineer shall verify and provide their approval of the Pressure Irrigation Station to the City of Twin Falls.
2. After the Pressure Irrigation station has been approved by the design engineer, the City Engineer or an authorized representative for the City of Twin Falls may accept the Pressure Irrigation station by verifying construction of station meets or exceeds the Pressure Irrigation Station construction plans, performance requirements, and submittals.

Division 900 – Standard Drawings

SD 901 – Pressure Irrigation Service with 4” PVC Valve Box

Remove and replace drawing with TFSD 901.

SD 902 – Pressure Irrigation Service with Fiberglass Valve Box

Remove drawing.

SD 903 – Pressure Irrigation Riser Location

Remove and replace drawing with TFSD 903.

ADD TFSD 904 – Pressure Irrigation 2” Blow-off Assembly

ADD TFSD 905 – Temporary Pressure Irrigation Blow-off Assembly

Division 1000 – CONSTRUCTION STORMWATER (BMPs)

Section 1002 – CONSTRUCTION SITE HOUSEKEEPING

Subsection 1.4 – Submittals

Modify Item B as follows:

Replace “Environmental Protection Agency” with “Idaho Department of Environmental Quality”

Division 1100 – TRAFFIC

Section 1101 – TRAFFIC SIGNALS AND APPURTENANCES

Delete the section in its entirety. Refer to the Idaho Transportation Department standards as guidance for traffic signals and appurtenances and as approved by the City Engineer.

Section 1102 – STREET LIGHTING

Subsection 2.2 – Junction Boxes

Delete subsection in its entirety and replace it with the following:

- A. Provide a reinforced stackable footed polymer concrete box approved for roadway installation with a traffic rated, UL approved, bolt down cover (marked “electrical”) and frame. Minimum size is 11” × 18” × 18” (Length × Width × Depth).

- B. Box to be Hubbell Quazite PG1118JA18 or approved equal. Cover to be Hubbell Quazite PG1118HH0041 or approved equal.

Subsection 2.3 – Fuse Holders

Delete Item A and replace it with the following:

- A. Insulated fuse holders (installed at the base of each metal pole), one per each ‘hot’ line.
 - 1. Fuse Holder and Insulating Boot: In-line, water resistant, Ferraz Shawmut Model FEB-81-81-BA or approved substitution.

Subsection 2.5 – Conduit

Delete Item A.2 in its entirety and replace it with the following:

- 2. Schedule 80 PVC conduit: UL approved, 1 inch minimum diameter

Subsection 2.11 – Fiberglass Poles

Delete the subsection in its entirety.

Subsection 2.12 – Historical Poles

Delete last sentence from Item A.

Subsection 2.13 Concrete Pole Bases

Modify Item A as follows:

Replace “3000” with “4000”

Subsection 2.16 Light Fixtures

Delete from the following from Item B:

“, high pressure sodium light source”

Delete Item D in its entirety and replace it with the following:

LED lighting color temperature between 4000K and 4400K.

Delete Item F in its entirety and replace it with the following:

Acrylic or glass lens with internal refractor. Type of distribution required by local agency.

Subsection 3.1 Examinations

Delete Item B.3.

Subsection 3.6 Disconnect Boxes

Add the following to the title of the Subsection:

“(If required) Wood Pole Application ONLY”

Subsection 3.9 Pole Installation

Modify Item B as follows:

Delete “or fiberglass”

Section 1103 – CONSTRUCTION TRAFFIC CONTROL

Subsection 3.1 - General

Add the following to Item C:

Contractor shall not close a roadway more than three (3) hours before work is to begin on that particular roadway.

Division 1100 – Standard Drawings

SD 1109 – Standard Signal Pole Foundation Detail

Remove and replace drawing with TFSD 1109.

SD 1110 – Standard Cabinet Foundation – Detail A

Remove and replace drawing with ITD Standard Drawing I-7-A-1.

SD 1111 – Standard Cabinet Foundation – Detail B

Remove and replace drawing with ITD Standard Drawing I-7-A-2.

SD 1112 – Standard Detector Loop Wire Color Scheme Detail

Remove drawing.

SD 1114 – Standard Traffick Signal Mast Arm and Pole – Detail A

Remove drawing.

SD 1115 – Standard Traffic Signal Mast Arm and Pole – Detail B

Remove drawing.

SD 1116 – 25' Standard Metal/Fiberglass Streetlight with Mast Arm Greater than 6'

Remove and replace drawing with TFSD 1116.

SD 1117 – Street Light Installation 25' Standard Concrete Base

Remove and replace drawing with TFSD 1117.

SD 1119 – Street Light Installation 25' Standard Direct Burial

Remove and replace drawing with TFSD 1119.

SD 1126 – Metered Illumination and Metered Signalization Electrical Service Pedestal

Remove and replace drawing with ITD Standard Detail td04PAD.

SD 1130 – Sign Installation

Remove and replace drawing with TFSD 1130.

SD 1131 – Sign Installation

Remove drawing.

Division 2000 – MISCELLANEOUS

SECTION 2020 – SURVEY MONUMENTS

Subsection 3.3 – Poured Monuments

Modify Item B as follows:

Delete “Owner” and replace it with “Contractor”

SECTION 2030 – UTILITY ADJUSTMENTS

Subsection 3.1 – Manholes, Storm Drains, and Valve Boxes

Modify Item D as follows:

Delete “21” and replace it with “12”

Subsection 3.2 – Raise Manhole to Grade

Modify Item A as follows:

Delete “21” and replace it with “12”

Modify Item B as follows:

Delete “21” and replace it with “12” in both locations.

Subsection 4.1 – Measurement and Payment

Modify Item B as follows:

Add “installing a concrete collar” to the list of items the Storm Water Structure, Adjust to Grade pay item includes.

Modify Item C as follows:

Add “installing a concrete collar” to the list of items the Valve Boxes, Adjust to Grade pay item includes.

Add SECTION 2060 – WATER FOR CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This work consists of providing water as necessary for the construction of the project including but not limited to the following:
 - 1. Dust Abatement
 - 2. Water for Compaction
 - 3. Drilling Operations

1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing
- B. Section 202 – Excavation and Embankment
- C. Section 206 – Permanent Erosion Control
- D. Section 207 – Permanent Stormwater BMPs
- E. Section 301 – Trench Excavation
- F. Section 307 – Street Cuts and Surface Repairs
- G. Section 401 – Water Pipe and Fittings
- H. Section 501 – Gravity Sewers
- I. Section 601 – Culvert, Storm Drain and Gravity Irrigation Pipe
- J. Section 703 – Cast-In-Place Concrete
- K. Section 801 – Uncrushed Aggregates
- L. Section 802 – Crushed Aggregates
- M. Section 901 – Pressure Irrigation Pipe and Fittings

PART 2 MATERIALS

2.1 NOT USED

PART 3 WORKMANSHIP

- 3.1 Provide sufficient equipment and materials to apply water as needed and/or as directed by the Engineer for suppressing dust caused by construction activities, obtaining sufficient compaction of materials, aiding in drilling operations, or for any other construction activities.

- 3.2 Water meters and access to City of Twin Falls fire hydrants may be procured by contacting the City of Twin Falls Water Department at (208) 736-2275.

PART 4 MEASUREMENT AND PAYMENT

- 4.1 Use the following unit price options as designated in the Bid Schedule for Excavation. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.

A. Water for Construction: By the lump sum. Includes full compensation for all materials, labor, and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 2060.4.1.A.1
2. Bid Schedule Description: Water for Construction...lump sum (LS).

B. Water for Construction: By the 1,000 gallons measured through calibrated tanks, distributors or accurate water meters. Includes full compensation for all materials, labor, and equipment necessary for completing the work and all appurtenances not itemized on the Bid Schedule.

1. Bid Schedule Payment References: 2060.4.1.B.1
2. Bid Schedule Description: Water for Construction...1,000 gallons (MG).

END OF SECTION

Add SECTION 2070 – FIBER OPTIC

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work covered by this section includes the furnishing of all labor, tools, equipment, and materials to install conduit and manholes for future fiber optic cable.

1.2 SUBMITTALS

- A. Submit material data sheets and/or shop drawings for materials to be installed under this section, if required by the Engineer.
- B. Submit manufacturer's certification that conduit, manholes, and appurtenances meet or exceed specifications, if required by the Engineer.

PART 2 MATERIALS

2.1 FIBER OPTIC CONDUIT

- A. Dual 1.25" HDPE 3408, DR-11. Conduit will meet ASTM F2160. All resin used in HDPE conduit will meet ASTM D3350.
- B. Conduit shall be orange in color.
- C. Joints shall be "Shur-Lock II" coupler as manufactured by ARNCO Corporation or approved equal. Heat fusion joining shall not be allowed.

2.2 FIBER OPTIC MANHOLES

- A. Precast manholes as shown on TFSD-2070 will meet the requirements of ASTM C 478.
- B. Manhole frames shall be made of cast iron per TFSD-507 with cover marked "FIBER OPTIC".

PART 3 WORKMANSHIP

3.1 INSTALLATION

- A. Fiber Optic Conduit Manhole

1. Fiber optic conduit manhole installation shall conform to Section 502. If necessary for construction, all rock excavation required shall be considered incidental with the manhole installation.
2. Trench excavation and backfill shall be in accordance with Division 300.
3. Fiber Optic manholes shall be installed at all horizontal and vertical bends unless otherwise specified by the Engineer and Owner.

B. Fiber Optic Conduit

1. Bends or sweeps shall be a minimum radius of 5 feet, but shall not be less than the conduit manufacturer's recommendations.
2. Conduit in fiber optic manholes shall be sealed with a closed polyethylene plug that prevents moisture and foreign material from entering the conduits. Broken plugs and plugs that do not achieve a tight seal shall be rejected. Plugs shall be of an appropriate size to properly seal the conduit, as recommended by the manufacturer. Approximately ½ inch of the plug length shall remain exposed after installation.
3. All conduits shall comply with the latest edition of the National Electrical Code and applicable state and local regulations.
4. A foil type warning tape is to be installed directly above the fiber optic conduit.
5. Exercise the necessary precautions to prevent the lodging of dirt, concrete, or rubbish in the conduit, fittings, and manholes during the course of installation.

3.2 TESTING AND CLEANING

- A. After installation, the conduit shall be tested for obstruction or flattening by pulling a mandrel of appropriate size through the conduit. If an obstruction is found, that section is to be replaced at no additional expense to the Owner.
- B. Cleaning conduits shall be performed by drawing a brush with stiff bristles and swab through each conduit to make certain no foreign materials are left in the conduit. Cleaning and mandrelling operations may be performed simultaneously.

PART 4 MEASUREMENT AND PAYMENT

4.1 Use one or more of the following unit prices as designated on the Bid Schedule. Includes all labor, materials, manholes, conduit, appurtenances, connections, fittings, sweeps, excavation, backfill, and surface repair and any other items necessary to complete the work. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.

A. Dual Fiber Optic Conduit: By the linear foot for the size of conduit measured along the horizontal center of the conduit through all fittings and sweeps.

- 1. Bid Schedule Payment References: 2070.4.1.A.1
- 2. Bid Schedule Description: Dual Fiber Optic Conduit – Size____...linear foot (LF).

B. Fiber Optic Manhole: Per each.

- 1. Bid Schedule Payment References: 2070.4.1.B.1
- 2. Bid Schedule Description: Fiber Optic Manhole...each (EA).

END OF SECTION

Division 2000 – Standard Drawings

SD 2030A – Adjust Standard Manhole Type A to Grade

Remove drawing.

SD 2030AA – Construction Traffic Control

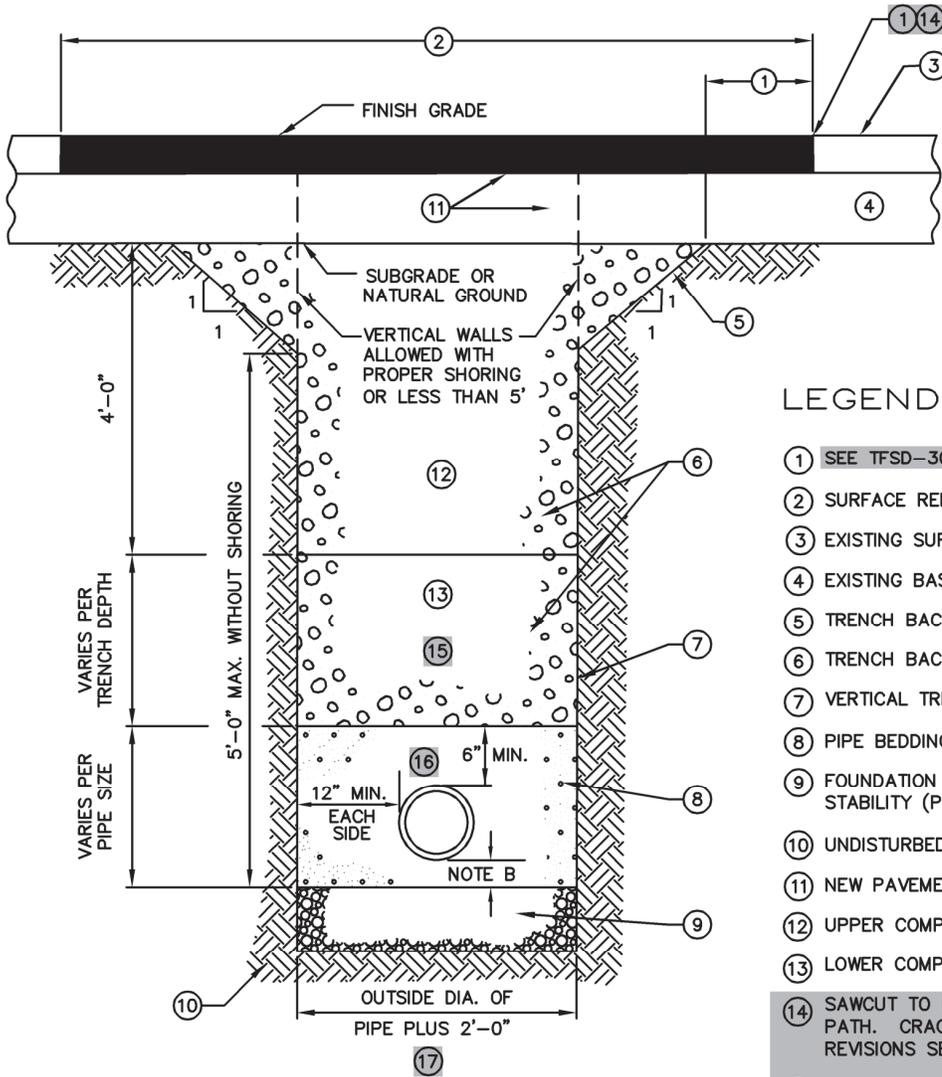
Remove drawing.

SD 2030BA – Construction Traffic Control

Remove drawing.

ADD TFSD 2040I – Chain Link Fence Detail

ADD TFSD 2070 – Fiber Optic Manhole

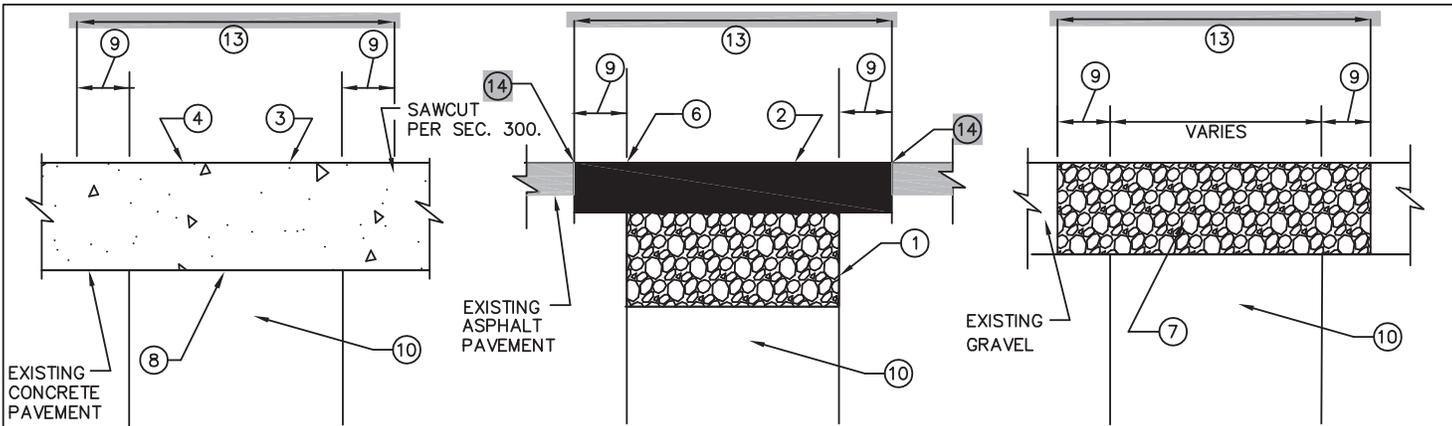


LEGEND

- ① SEE TFSD-303 FOR SURFACE REPAIR DETAILS.
- ② SURFACE REPAIR WIDTH, 6' MINIMUM.
- ③ EXISTING SURFACE.
- ④ EXISTING BASE.
- ⑤ TRENCH BACK SLOPE PER O.S.H.A. OR SUITABLE SHORING.
- ⑥ TRENCH BACKFILL PER SECTION-306.
- ⑦ VERTICAL TRENCH WALLS SHORING PER O.S.H.A..
- ⑧ PIPE BEDDING PER SECTION-305 (SEE SD-302).
- ⑨ FOUNDATION STABILIZATION MAY VARY PER SOIL TYPE AND STABILITY (PER SECTION-304).
- ⑩ UNDISTURBED SOIL (TYP).
- ⑪ NEW PAVEMENT AND BASE.
- ⑫ UPPER COMPACTION ZONE.
- ⑬ LOWER COMPACTION ZONE.
- ⑭ SAWCUT TO BE AS FAR AS POSSIBLE FROM VEHICULAR WHEEL PATH. CRACK SEAL SAWCUT(S). (SEE CITY OF TWIN FALLS REVISIONS SECTION 307).
- ⑮ MARKING TAPE TO BE 12" ABOVE TOP OF PIPE.
- ⑯ PLACE OR ATTACH FINDER WIRE AT CROWN OF PIPE FOR WATER AND PRESSURIZED IRRIGATION PIPES.
- ⑰ ROCK SAW WIDTH MAY BE NARROWER WITH WRITTEN PERMISSION OF CITY ENGINEER.

NOTES

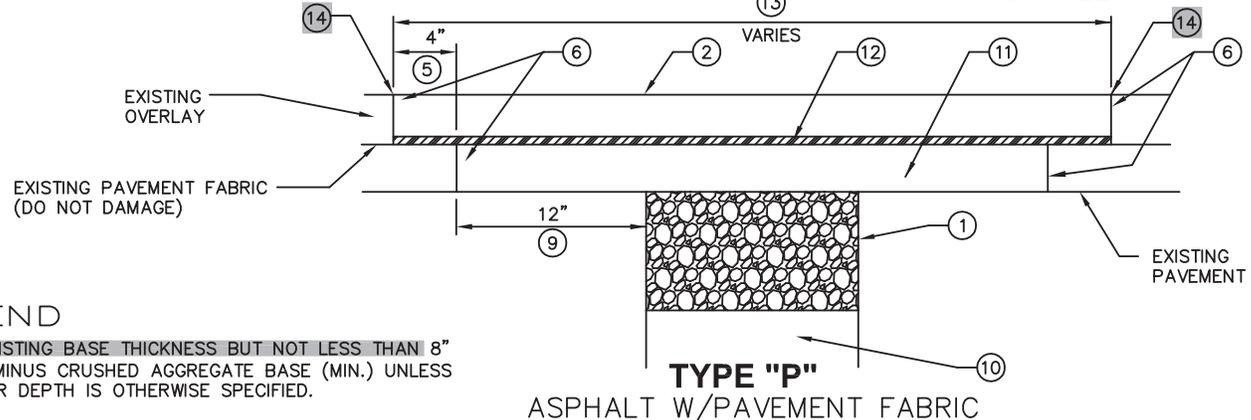
- (A) TRENCH EXCAVATION PER SECTION-301.
- (B) PIPE BEDDING PER SECTION-305.
- (C) BACKFILL AND COMPACTION PER SECTION-306.
- (D) SURFACE REPAIR AND BASE PER SECTION-307 (SEE TFSD-303).
- (E) MINIMUM 30" COVER ON TOP OF WATER, IRRIGATION, STORM AND SEWER PIPES.



TYPE "B"
CONCRETE

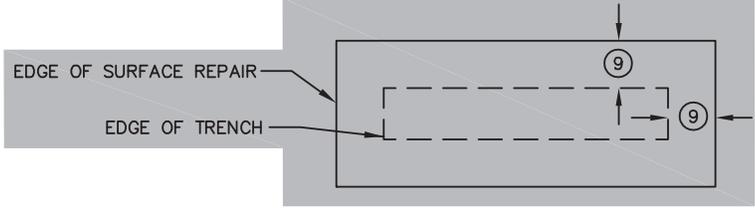
TYPE "P"
ASPHALT

TYPE "C"
GRAVEL



LEGEND

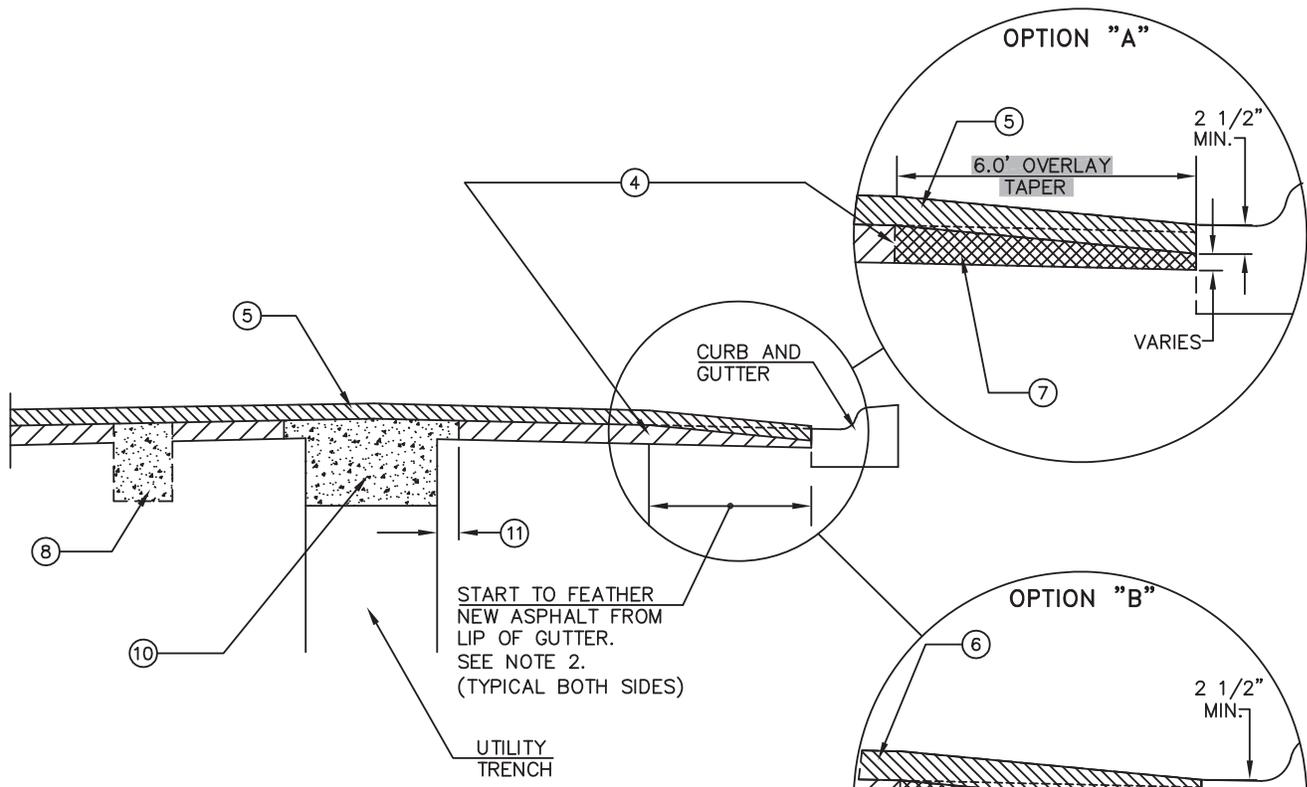
- ① MATCH EXISTING BASE THICKNESS BUT NOT LESS THAN 8" OF 3/4" MINUS CRUSHED AGGREGATE BASE (MIN.) UNLESS A GREATER DEPTH IS OTHERWISE SPECIFIED.
- ② MATCH EXISTING PAVEMENT DEPTH TO 6" UNLESS A GREATER DEPTH IS OTHERWISE SPECIFIED. USE NO LESS THAN A 2 1/2" (MIN.) MAT ON LOCAL STREETS AND 3" (MIN.) MAT ON COLLECTORS AND ARTERIALS.
- ③ PORTLAND CEMENT CONCRETE SHALL BE CLASS 4000 PSI EARLY STRENGTH, AND COMPLY WITH SECTION-706.
- ④ KEEP TRAFFIC OFF ROADWAY UNTIL IT ACHIEVES SPECIFIED STRENGTH, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- ⑤ MINIMUM DISTANCES. 4" OVERLAP APPLIES WHERE FABRIC IS BETWEEN ASPHALT LAYERS.
- ⑥ CUT ASPHALT IN NEAT STRAIGHT LINE.
- ⑦ 3/4" MINUS AGGREGATE SURFACE COURSE (8") OR THICKNESS OF EXISTING GRAVEL, WHICHEVER IS GREATER.
- ⑧ THICKNESS EQUALS EXISTING PAVEMENT DEPTH PLUS 2" OF CONCRETE PAVEMENT.
- ⑨ AFTER BACKFILLING TRENCH, CUT BACK AT LEAST ONE FOOT BEYOND THE DISTURBED TRENCH EDGE.
- ⑩ COMPACTED TRENCH BACKFILL AS PER TFSD-301 AND SECTION-306 OF THESE SPECIFICATIONS.
- ⑪ ASPHALT TO EXISTING SHELF (MIN 2" THICK).
- ⑫ PLACE NEW PAVEMENT FABRIC FULL WIDTH OF ASPHALT PATCH.
- ⑬ 6" MINIMUM WIDTH FOR SURFACE RESTORATION. FULL PANEL TO BE REPLACED WHEN IN CONCRETE SECTION.
- ⑭ SAWCUT TO BE AS FAR AS POSSIBLE FROM VEHICULAR WHEEL PATH. CRACK SEAL SAWCUT(S). (SEE CITY OF TWIN FALLS REVISIONS SECTION 307).



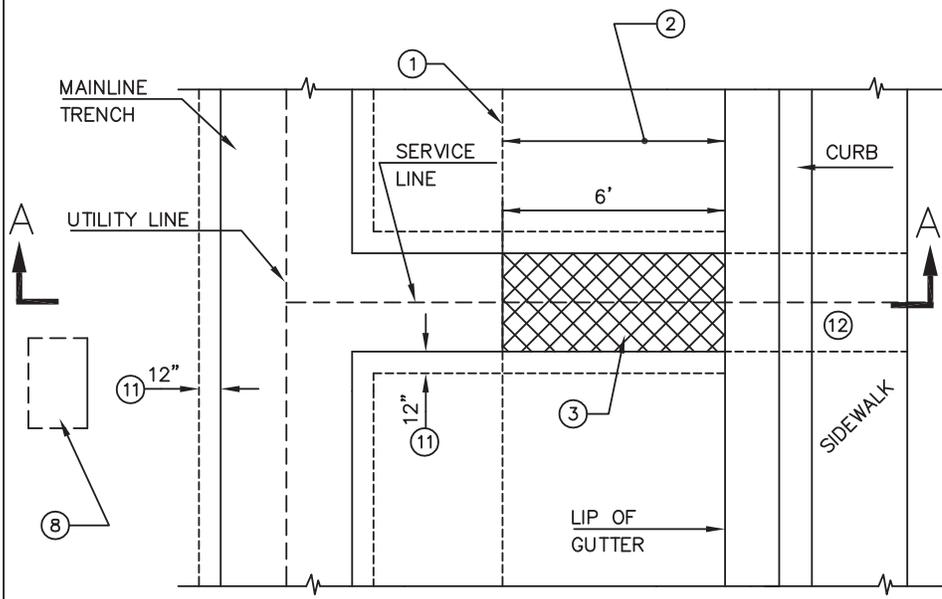
NOTES:

- (A) REFER TO SECTION-307 FOR MATERIALS AND WORKMANSHIP REQUIREMENTS.
- (B) ALL STREET CUTS WILL REQUIRE RESURFACING BY A PAVING MACHINE OR SPREADER BOX. PATCH WIDTHS ARE NEVER TO BE LESS THAN 4' IN WIDTH. LOCATE THE MATCH OF THE NEW TO EXISTING PAVEMENT OUT OF THE VEHICLE WHEEL PATH OF THE STREET.
- (C) WHERE THE STREET SURFACE INCLUDES AN OVERLAY WITH FABRIC, TAKE THE FOLLOWING ADDITIONAL STEPS:
 - A. EXCAVATE ABOVE FABRIC AN ADDITIONAL 4" ON EACH SIDE TO EXPOSE EXISTING FABRIC.
 - B. INSTALL NEW ASPHALT TO GRADE FABRIC.
 - C. INSTALL NEW FABRIC FULL WIDTH OF CUT, IN ACCORDANCE WITH MANUFACTURE'S INSTRUCTIONS.
 - D. OVERLAY FABRIC WITH ASPHALT TO FINISH GRADE OF STREET.
- (D) TACK ALL COLD JOINT SURFACES WITH EMULSION WHICH HAS BEEN "BROKEN" PRIOR TO PATCHING.
- (E) WHEN AN ENTIRE LANE OR MORE IS DISTURBED, THE REPAIR SECTION SHALL ADHERE TO THE TABLE ON TFSD-801.
- (F) SURFACE REPAIR TYPE TO MATCH ADJACENT EXISTING ROADWAY TYPE UNLESS OTHERWISE APPROVED BY CITY.

2020



SECTION A-A
N.T.S.



PLAN VIEW
N.T.S.
MODIFIED FULL WIDTH
SURFACE RESTORATION

- NOTE:
- (A) REPAIR PAVEMENT SOFT SPOTS PRIOR TO OVERLAY.
 - (B) SEE TFS-303B FOR LEGEND.

2020 * FOR LOCAL OR RESIDENTIAL STREETS ONLY.

CITY
OF
TWIN FALLS

TYPE "P" ALTERNATE FOR
MODIFIED FULL WIDTH
SURFACE RESTORATION *

STANDARD DRAWING
NO. TFS-303A

LEGEND

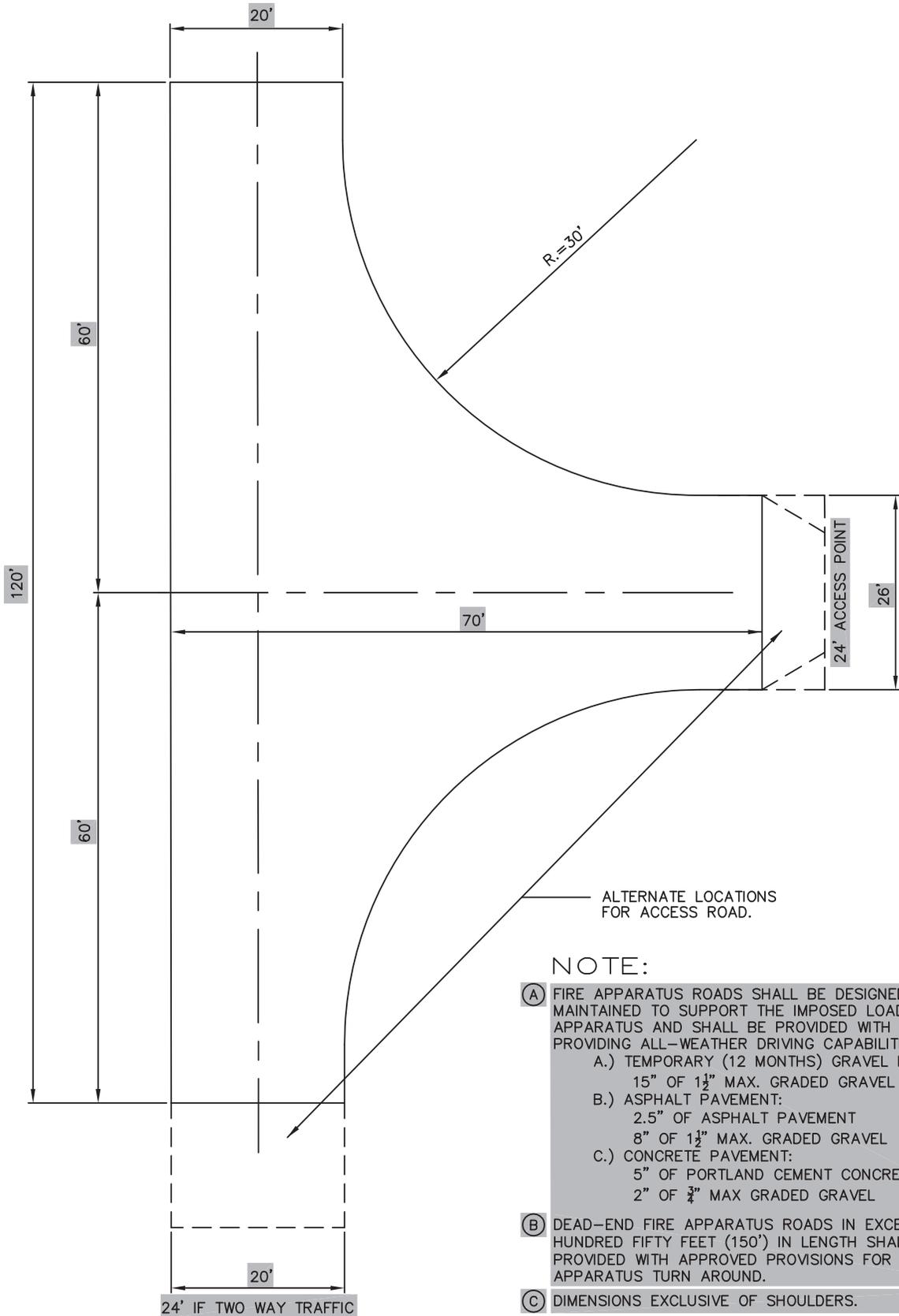
- ① BEGIN TAPER.
- ② REMOVE OR ROTOMILL 6' OF PAVEMENT UNDER OPTION "A". UNDER OPTION "B", THIS DISTANCE CAN BE 3' WHEN THE SERVICE LINES ARE PATCHED AND THE CROWN OF THE STREET IS NOT EXCESSIVE ENOUGH TO PROMOTE A SLOPE THAT EXCEEDS 8% CROSS SLOPE IN A PARKING LANE OR 4% IN A DRIVING LANE. IF THE ASPHALT IS CUT OR REMOVED, DO NOT ALLOW THE PATCH SEAM TO FALL WITHIN A WHEEL PATH. OPTION "B" IS MORE TYPICAL OF A STREET THAT DOES NOT HAVE CURB OR GUTTER.
- ③ WIDTH OF ROAD EDGE REPAIR: 6' FOR OPTION "A". MINIMUM 3' FOR OPTION "B". SEE NOTE (2).
- ④ REMOVE OR ROTOMILL 6' WIDE ASPHALT STRIP FOR OPTION "A" AND PREPARE A MINIMUM 3' WIDE SECTION FOR OPTION "B" (TYPICAL FOR BOTH SIDES). OPTION "B" WILL BE USED WHERE NO CURB IS PRESENT, UNLESS OTHERWISE APPROVED.
- ⑤ 2.5" (MIN.) ASPHALT FULL WIDTH OVERLAY.
- ⑥ ASPHALT WILL TAPER FROM 2.5" TO THE LIP OF CURB.
- ⑦ PLACE 3/4" MINUS CRUSHED GRAVEL TO CREATE TAPER. ALL SERVICE LINES SHALL FOLLOW NOTE (10).
- ⑧ SOFT SPOT REPAIR, SEE SPECIFICATIONS.
- ⑨ ALL SERVICE LINE TRENCH PATCHES TO MATCH EXISTING MAT, UNLESS OTHERWISE SPECIFIED. EXTEND THE SERVICE PATCH 12" BEYOND THE START OF THE TAPER. THE PATCH WILL BE PLACED TO THE ORIGINAL SURFACE GRADE.
- ⑩ PLACE A MINIMUM OF 8" OF 3/4" MINUS GRAVEL AS BASE IN TRENCH OR MATCH EXISTING BASE THICKNESS, WHICHEVER IS GREATER.
- ⑪ NO LONGITUDINAL ASPHALT PATH SEAMS SHALL FALL IN THE WHEEL PATH FOR VEHICULAR TRAFFIC.
- ⑫ REPLACE ANY DAMAGED CURB, GUTTER, OR SIDEWALK DURING CONSTRUCTION.

2020

CITY
OF
TWIN FALLS

TYPE "P" ALTERNATE FOR
MODIFIED FULL WIDTH
SURFACE RESTORATION *

STANDARD DRAWING
NO. **TF**SD-303B



NOTE:

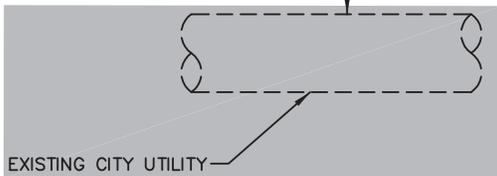
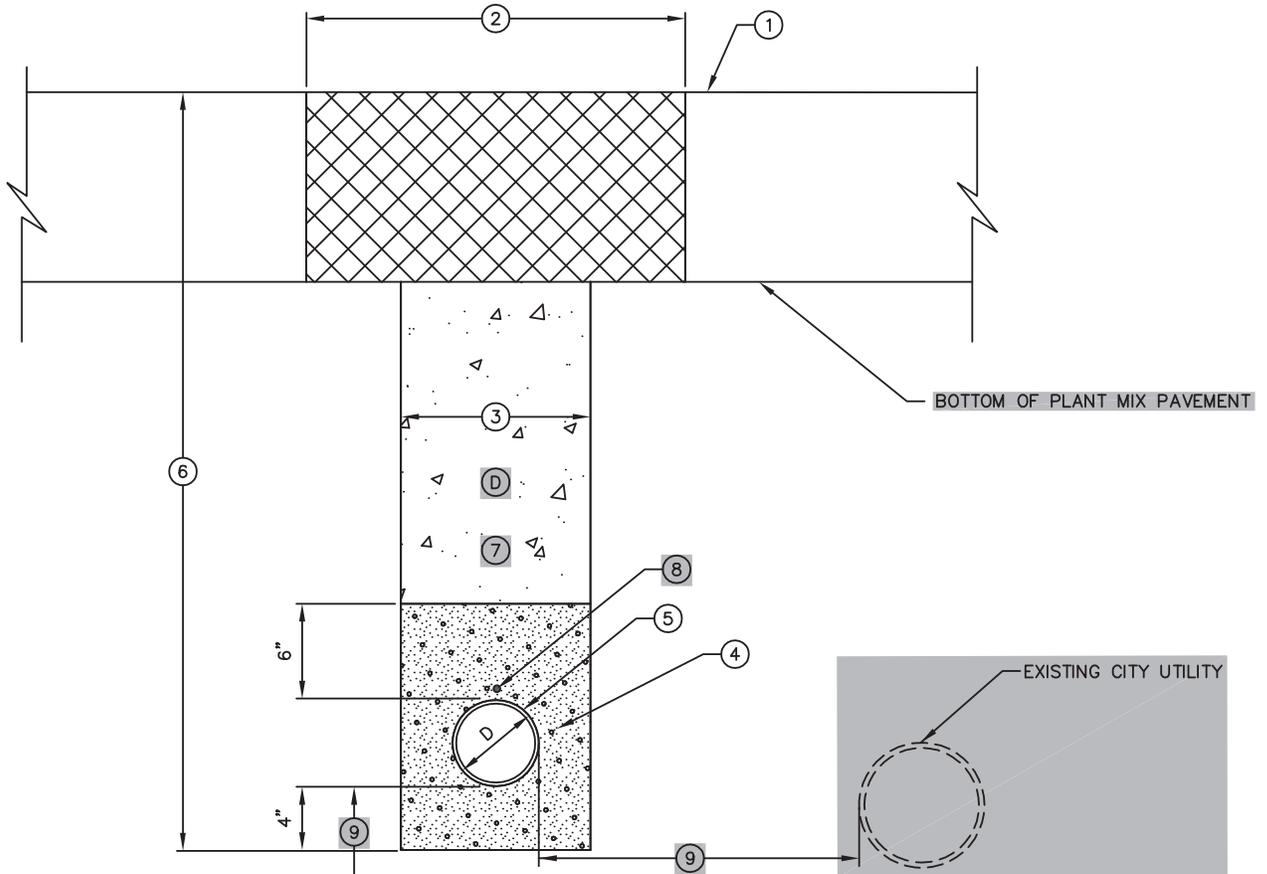
- (A) FIRE APPARATUS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS AND SHALL BE PROVIDED WITH A SURFACE PROVIDING ALL-WEATHER DRIVING CAPABILITIES.
 - A.) TEMPORARY (12 MONTHS) GRAVEL DRIVES:
 - 15" OF 1½" MAX. GRADED GRAVEL
 - B.) ASPHALT PAVEMENT:
 - 2.5" OF ASPHALT PAVEMENT
 - 8" OF 1½" MAX. GRADED GRAVEL
 - C.) CONCRETE PAVEMENT:
 - 5" OF PORTLAND CEMENT CONCRETE
 - 2" OF ¾" MAX GRADED GRAVEL
- (B) DEAD-END FIRE APPARATUS ROADS IN EXCESS OF ONE HUNDRED FIFTY FEET (150') IN LENGTH SHALL BE PROVIDED WITH APPROVED PROVISIONS FOR FIRE APPARATUS TURN AROUND.
- (C) DIMENSIONS EXCLUSIVE OF SHOULDERS.

2020

CITY
OF
TWIN FALLS

**FIRE ACCESS ROAD
TURNAROUND DETAIL**

STANDARD DRAWING
NO. **TFSD-305**



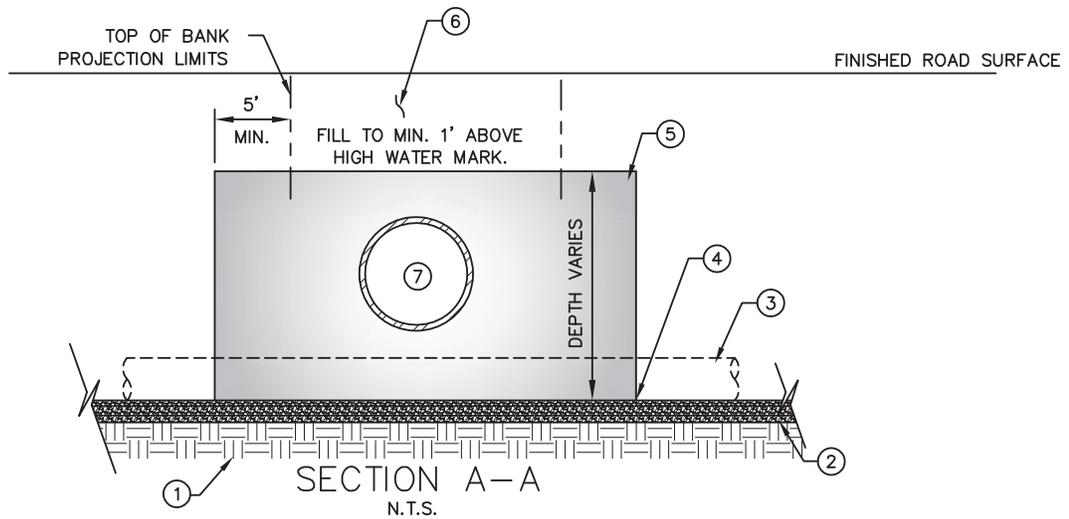
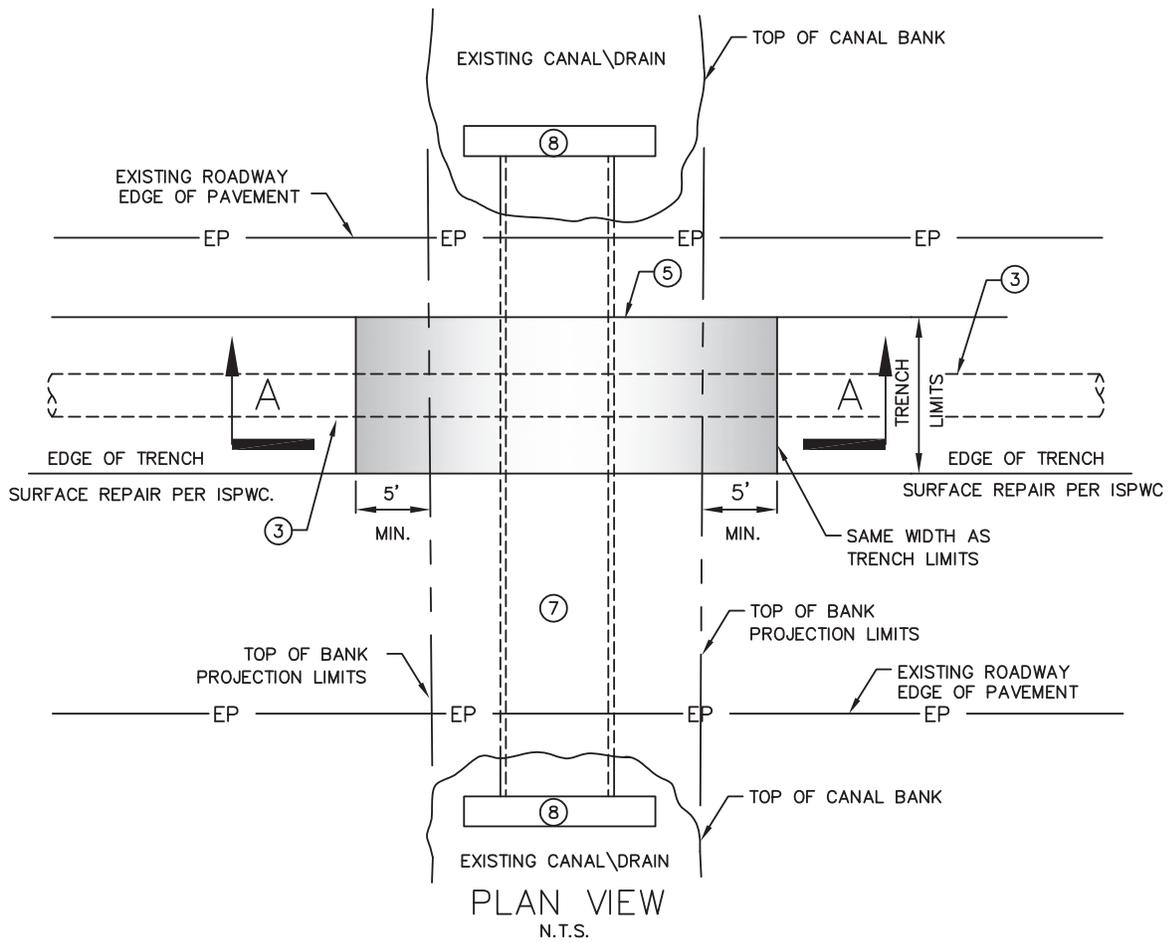
LEGEND

- ① FINISH GRADE.
- ② SURFACE REPAIRS PER SECTION-307 AND TFSD-303.
- ③ 12" MINIMUM INSIDE VEHICLE TRAVEL AREAS, D+3" OUTSIDE VEHICLE TRAVEL AREAS.
- ④ TYPE I OR TYPE III BEDDING FOR AREAS INSIDE THE VEHICLE TRAVEL AREA. TYPE I OR TYPE III BEDDING, OR NATIVE NON-ORGANIC MATERIAL WITH MAXIMUM PARTICLE SIZE OF 3/4" OUTSIDE VEHICLE TRAVEL AREA.
- ⑤ PIPE OR CONDUIT.
- ⑥ 48" MAX. UNLESS OTHERWISE SPECIFIED. 30" MIN. OR BELOW THE BALLAST, WHICHEVER IS GREATER. INSIDE VEHICLE TRAVEL AREAS. 24" MIN. OR BELOW THE BALLAST WHICHEVER IS GREATER. OUTSIDE VEHICLE TRAVEL AREAS.
- ⑦ MARKING TAPE TO BE 12" ABOVE TOP OF PIPE.
- ⑧ LOCATE WIRE IN OR ON PIPE IF REQUIRED BY OWNER.
- ⑨ UTILITY WORK MUST MAINTAIN A 6" MIN VERTICAL AND A 36" MIN HORIZONTAL SEPARATION FROM EXISTING CITY UTILITIES, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

NOTES

- (A) USE THIS TRENCH TO PLACE CABLE, CONDUIT, OR PIPE LESS THAN 6" IN DIAMETER.
- (B) COMPACT BACKFILL PER SECTION-306.
- (C) CUT ALL ASPHALT IN A STRAIGHT LINE.
- (D) FOR ANY TRENCH WIDTH < 24" IN TRAFFIC AREAS, USE LOW STRENGTH FLOWABLE FILL PER SECTION 703.

UTILITY POTHOLES 1 SQUARE FOOT OR LESS MAY BE REPAIRED USING GROUT. IF POTHOLES ARE GREATER THAN 1 SQUARE FOOT USE COMPACTED PEA GRAVEL BELOW A PLANT MIX CAP.



LEGEND

- ① EXISTING GROUND.
- ② PIPE BEDDING PER ISPMC.
- ③ INSTALLED PIPE BENEATH CANAL DRAIN CROSSING.
- ④ FLOWABLE FILL FROM TOP OF PIPE BEDDING.
- ⑤ FLOWABLE FILL.
- ⑥ BACKFILL PER TFS-301. SURFACE REPAIR PER TFS-303.
- ⑦ CULVERT CROSSING.
- ⑧ HEADWALL.

2020

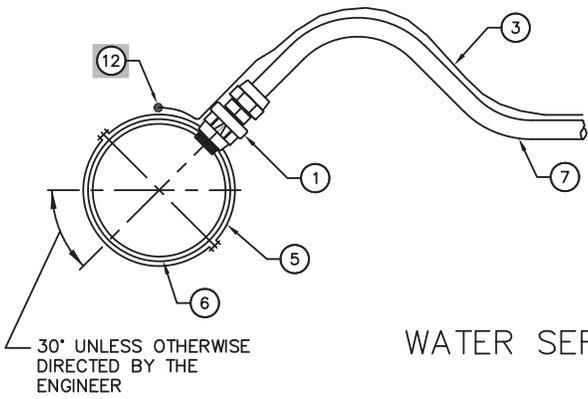
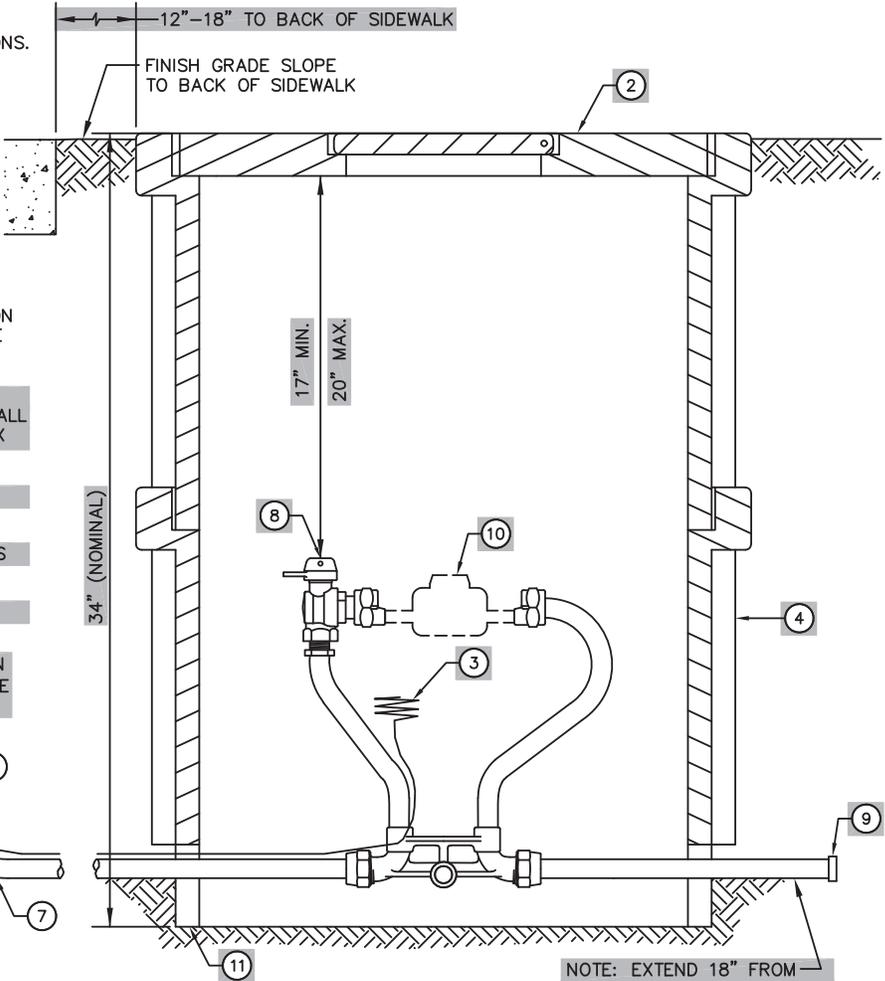
CITY
OF
TWIN FALLS

FLOWABLE FILL AT
CULVERT CROSSINGS

STANDARD DRAWING
NO. TFS-308

NOTES:

- (A) ALL PRODUCTS AS LISTED OR APPROVED SUBSTITUTIONS.
- (B) NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS TO BE USED.
- (C) SERVICE PIPE: POLYETHYLENE PRESSURE PIPE, SDR 9, 200 PSI, CENFLO HDPE, ASTM D2737 CTS.
- (D) SADDLE COUPLINGS: USED FOR CONNECTION OF ALL SERVICE LINES TO PVC MAIN. SERVICE SADDLES: PAINTED SADDLE WITH STAINLESS STEEL DOUBLE BAND, ROMAC, STYLE 202S.
- (E) NO SERVICE CONNECTIONS WITHIN ONE FOOT OF THE PIPE ENDS. STAGGER MULTIPLE CONNECTIONS MADE ON THE SAME JOINT OF PIPE ALONG THE CIRCUMFERENCE AND SEPARATED BY A MINIMUM OF ONE FOOT.
- (F) METER BOXES: METER BOXES SHALL BE LOCATED 12"–18" FROM BACK OF SIDEWALK. METER BOXES SHALL BE INSTALLED OUTSIDE OF THE DRIVEWAY. METER BOX SHALL BE RAVEN RMB-13-24-18 (QUANTITY 2).
- (G) ELEVATION OF METER LID PER CITY OF TWIN FALLS REQUIREMENTS.
- (H) STAINLESS STEEL INSERTS SHALL BE USED, 50 SERIES FOR POLYETHYLENE TUBING, INSERT-52.
- (I) INSTALL LOCATE TAPE 12" ABOVE ENTIRE LENGTH OF SERVICE LINE.
- (J) LENGTH OF WATER SERVICE SHALL BE NO MORE THAN 150' MEASURED ALONG THE PIPE FROM THE MAIN LINE TO THE METER BOX.



WATER SERVICE CONNECTION DETAIL
N.T.S.

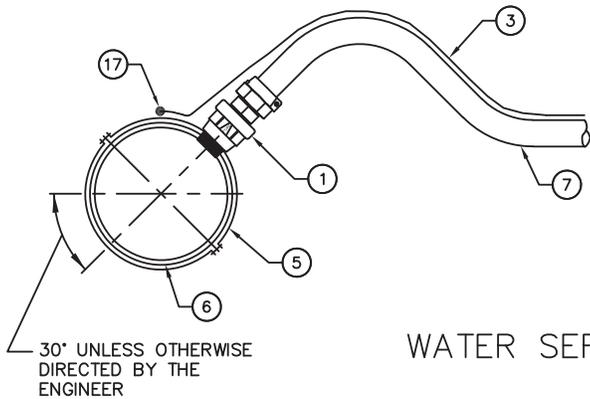
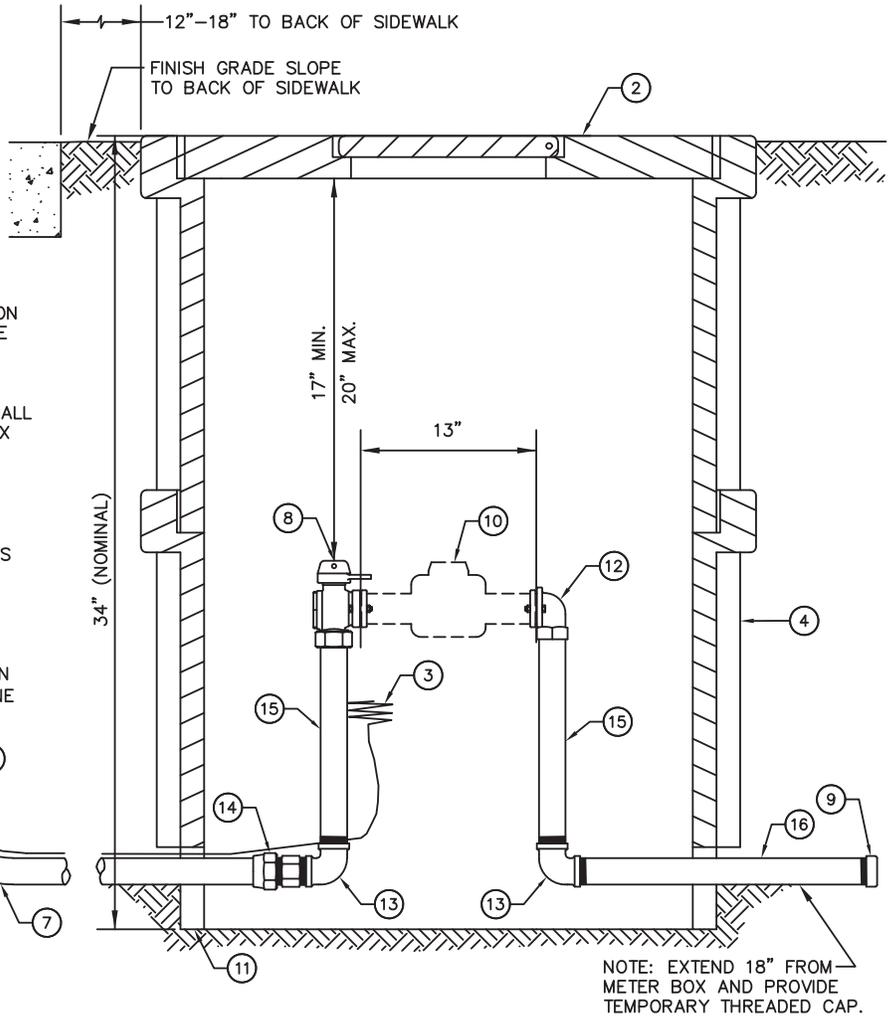
NOTE: EXTEND 18" FROM METER BOX AND PROVIDE 1" CTS x MALE IRON PIPE ADAPTER WITH CAP.

KEYNOTES:

- (1) GRIP JOINT CORPORATION STOP, FB1000-4-G-NL BALLCORP STYLE FOR CTS PE PIPE, OR APPROVED EQUAL.
- (2) RAVEN METER BOX LID, RML 13x24-POLY LID, OR APPROVED EQUAL.
- (3) NO. 12 COPPER LOCATE WIRE. PROVIDE A MINIMUM OF 24" COILED LOCATE WIRE IN BOX.
- (4) RAVEN PRODUCTS WATER METER BOX, RMB-13-24-18, OR APPROVED EQUAL.
- (5) ROMAC PAINTED STAINLESS STEEL DOUBLE BAND SADDLE, ROMAC 202S, OR APPROVED EQUAL.
- (6) WATER MAIN.
- (7) 1" SERVICE LINE, NO SPLICING ALLOWED.
- (8) FORD 70 SERIES COPPERSETTER CENTERED IN BOX, VB74-18W-44-44-G-NL, OR APPROVED EQUAL.
- (9) PROVIDE 1" CTS x MALE IRON PIPE ADAPTER WITH CAP.
- (10) CITY APPROVED METER TO BE PAID FOR BY OTHERS & FURNISHED & INSTALLED BY CITY OF TWIN FALLS.
- (11) PLACE METER BOX ON FIRM, UNDISTURBED, LEVEL EARTH.
- (12) CONNECT WATER SERVICE LOCATE WIRE WITH WATER MAIN LOCATE WIRE WITH WATERPROOF SPLICE CONNECTOR.
- (12) STAMP 4" LETTER "W" AND/OR "I" INTO CONCRETE WHERE WATER AND IRRIGATION SERVICES CROSS CURB.

NOTES:

- (A) ALL PRODUCTS AS LISTED OR APPROVED EQUALS.
- (B) NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS TO BE USED.
- (C) SERVICE PIPE: POLYETHYLENE PRESSURE PIPE, SDR 9, 200 PSI, CENFLO HDPE, ASTM D2737 CTS.
- (D) SADDLE COUPLINGS: USED FOR CONNECTION OF ALL SERVICE LINES TO PVC MAIN. SERVICE SADDLES: PAINTED SADDLE WITH STAINLESS STEEL DOUBLE BAND, ROMAC, STYLE 202S.
- (E) NO SERVICE CONNECTIONS WITHIN ONE FOOT OF THE PIPE ENDS. STAGGER MULTIPLE CONNECTIONS MADE ON THE SAME JOINT OF PIPE ALONG THE CIRCUMFERENCE AND SEPARATED BY A MINIMUM OF ONE FOOT.
- (F) METER BOXES: METER BOXES SHALL BE LOCATED 12"-18" FROM BACK OF SIDEWALK. METER BOXES SHALL BE INSTALLED OUTSIDE OF THE DRIVEWAY. METER BOX SHALL BE RAVEN RMB-17-30-18 (QUANTITY 2).
- (G) ELEVATION OF METER LID PER CITY OF TWIN FALLS REQUIREMENTS.
- (H) STAINLESS STEEL INSERTS SHALL BE USED, 50 SERIES FOR POLYETHYLENE TUBING, INSERT-54.
- (I) INSTALL LOCATE TAPE 12" ABOVE ENTIRE LENGTH OF SERVICE LINE.
- (J) LENGTH OF WATER SERVICE SHALL BE NO MORE THAN 150' MEASURED ALONG THE PIPE FROM THE MAIN LINE TO THE METER BOX.



WATER SERVICE CONNECTION DETAIL
N.T.S.

KEYNOTES:

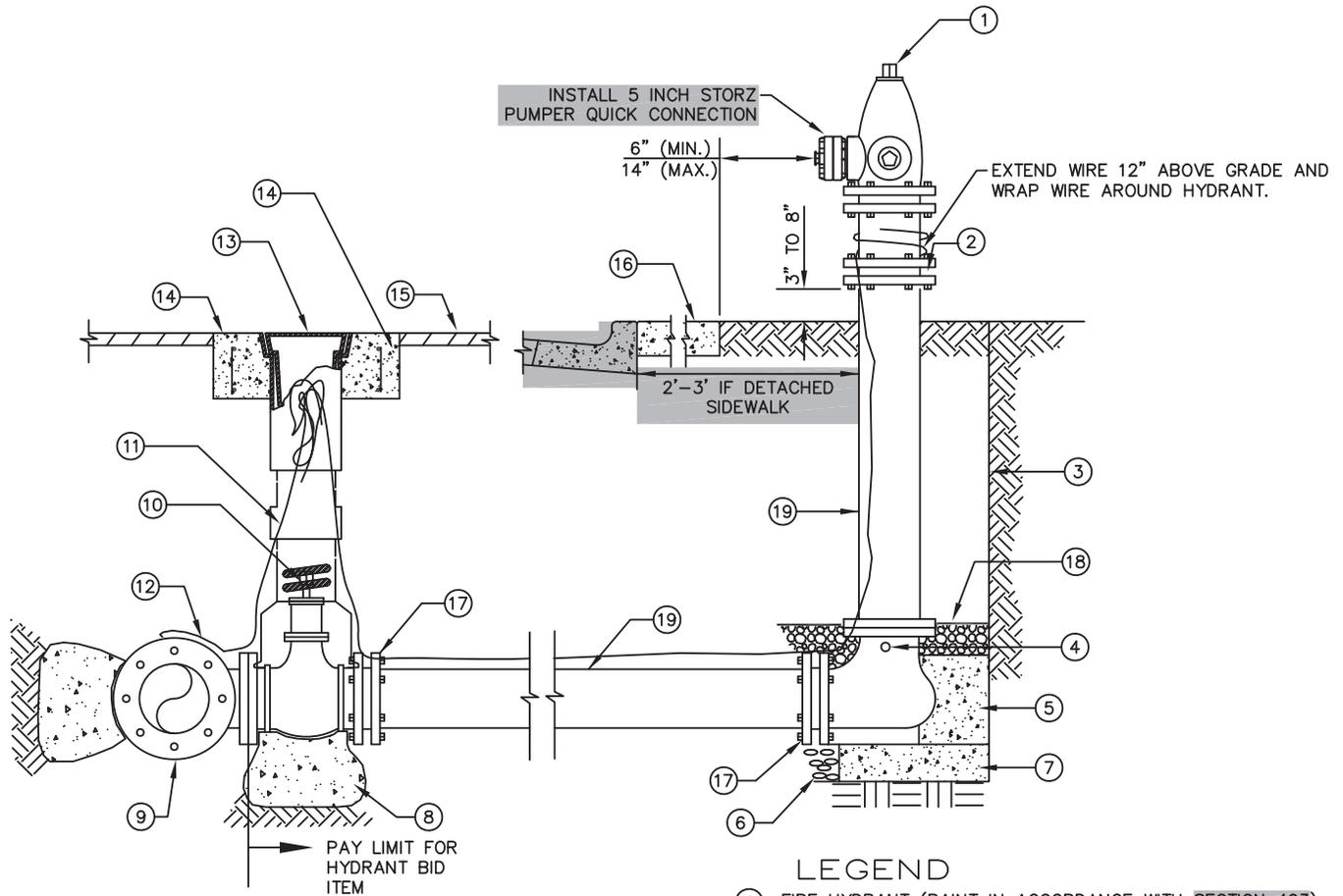
- (1) GRIP JOINT CORPORATION STOP, (1 1/2") FB1001-6-IDR7-NL, BALLCORP STYLE FOR CTS PE PIPE, OR APPROVED EQUAL.
- (2) RAVEN METER BOX LID, RML 17x30-POLY LID, OR APPROVED EQUAL.
- (3) NO. 12 COPPER LOCATE WIRE. PROVIDE A MINIMUM OF 24" COILED LOCATE WIRE IN BOX.
- (4) RAVEN PRODUCTS WATER METER BOX, RMB-17-30-18, OR APPROVED EQUAL.
- (5) ROMAC PAINTED SADDLE WITH STAINLESS STEEL DOUBLE BAND, ROMAC 202S, OR APPROVED EQUAL.
- (6) WATER MAIN.
- (7) 1 1/2" SERVICE LINE, NO SPLICING ALLOWED.
- (8) ANGLE BALL FLANGE METER VALVE, BFA13-666W, OR APPROVED EQUAL.
- (9) PROVIDE TEMPORARY THREADED CAP.
- (10) CITY APPROVED METER TO BE PAID FOR BY OTHERS & FURNISHED & INSTALLED BY CITY OF TWIN FALLS.
- (11) PLACE METER BOX ON FIRM, UNDISTURBED, LEVEL EARTH.
- (12) FLANGE METER ELL, LF31-66-NL, OR APPROVED EQUAL.
- (13) 1 1/2" CAST BRONZE THREADED 90° EL.
- (14) 1 1/2" GRIP JOINT COUPLING A.Y. McDONALD 74753G 1 1/2", 1 1/2" PACK JOINT COUPLING A.Y. McDONALD 74753-22 1 1/2", OR APPROVED EQUAL.
- (15) 1 1/2" SCHEDULE 80 PVC NIPPLE, 18" IN LENGTH.
- (16) 1 1/2" SCHEDULE 80 PVC NIPPLE, 24" IN LENGTH.
- (17) CONNECT WATER SERVICE LOCATE WIRE WITH WATER MAIN LOCATE WIRE WITH WATERPROOF SPLICE CONNECTOR.

2020

CITY
OF
TWIN FALLS

WATER SERVICE
CONNECTION (1 1/2")

STANDARD DRAWING
NO. TFSD-402



FIRE HYDRANT DETAIL

N.T.S.

NOTES:

- (A) ALL HYDRANTS SHALL BE NEW. HYDRANTS SHALL NOT BE RELOCATED AND REUSED UNLESS APPROVED BY THE CITY ENGINEER.
- (B) ALL AUXILIARY VALVES TO BE LOCATED AT THE TEE ON THE WATER MAIN AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER. WHERE EXISTING FITTINGS ARE NOT COMPATIBLE WITH NEW MAIN CONSTRUCTION, USE SUITABLE ADAPTERS OR NEW FITTINGS UPON APPROVAL BY THE ENGINEER.
- (C) ALL ANCHORS AND BLOCKING TO BEAR AGAINST UNDISTURBED SOIL.
- (D) IF WATER SERVICE TO HYDRANT IS TO COMMENCE PRIOR TO SETTING OF CONCRETE THRUST BLOCKING, USE A COMBINATION OF CONCRETE AND UNI-FLANGE SERIES 1300 JOINT RESTRAINT.
- (E) PLACE LOCATOR WIRE DIRECTLY ABOVE PIPE. SECURE FINDER WIRE UNDER (MJ) BOLT AT MAIN.
- (F) JOINT RESTRAINT DEVICES MAY BE USED AS AN ALTERNATE TO THRUST BLOCK WITH ENGINEER'S APPROVAL.
- (G) THE FIRE HYDRANT SERVICE LINE, MEASURED ALONG THE PIPE FROM WATER MAIN TO THE HYDRANT, SHALL BE NO MORE THAN 150' LONG.
- (H) NO ADDITIONAL SERVICES SHALL BE TAPPED ON A FIRE HYDRANT SERVICE LINE.

LEGEND

- ① FIRE HYDRANT (PAINT IN ACCORDANCE WITH SECTION 403).
- ② BREAK AWAY BOLTS.
- ③ END OF TRENCH.
- ④ DRAIN - KEEP CLEAR.
- ⑤ CAST IN PLACE CONCRETE THRUST BLOCK (4 SQ. FT. OF THRUST BLOCK REQUIRED) (SEE NOTE D).
- ⑥ 1" DRAIN ROCK EXTENDS 12" HORIZONTALLY FROM EACH SIDE OF CONCRETE BASE AND THRUST BLOCK AND VERTICALLY TO 2" ABOVE HYDRANT DRAIN WALL.
- ⑦ PRECAST CONCRETE BLOCK 1' X 1' X 6" THICK.
- ⑧ VALVE SUPPORT (PRECAST OR CAST IN PLACE).
- ⑨ TEE (MJ X MJ X FLANGE) WITH THRUST BLOCK.
- ⑩ 6" C.I. AUXILIARY VALVE (MJ X FLANGE).
- ⑪ VALVE BOX. SEE TFSD-406.
- ⑫ NO. 12 AWG. COPPER WIRE FINDER. SEE SD-514 FOR SPLICING (SEE NOTE E).
- ⑬ 5 1/4".
- ⑭ MIN 24"Ø X 12" CONCRETE COLLAR WITH (2) #4 REBAR HOOPS AND (4) #4 VERTICAL BARS.
- ⑮ FINISHED GRADE.
- ⑯ SIDEWALK.
- ⑰ MECHANICAL CONNECTION.
- ⑱ COVER DRAIN ROCK WITH FILTER FABRIC.
- ⑲ 6" DIAMETER DUCTILE IRON PIPE.

2020

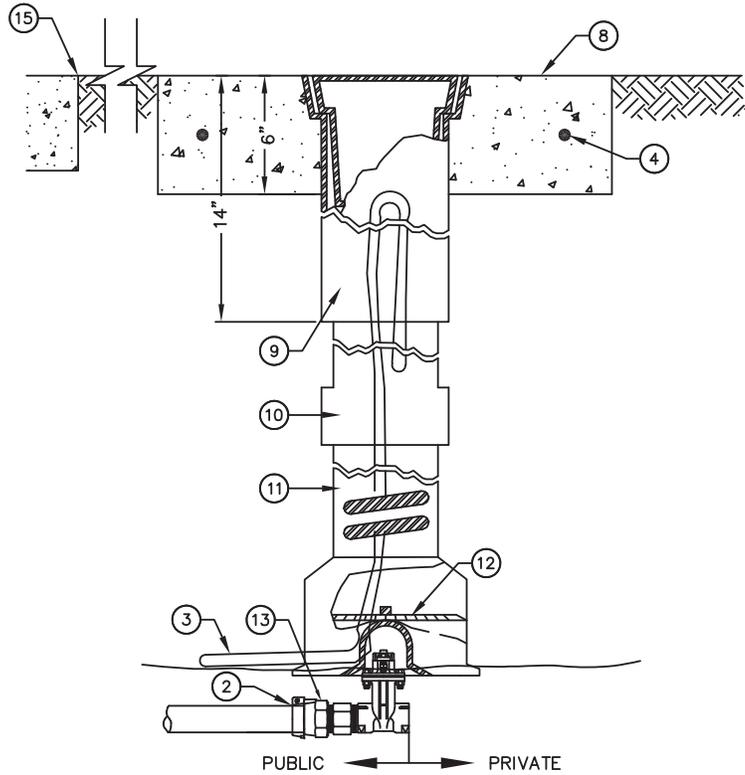
CITY
OF
TWIN FALLS

FIRE HYDRANT DETAIL

STANDARD DRAWING
NO. **TFSD-404**

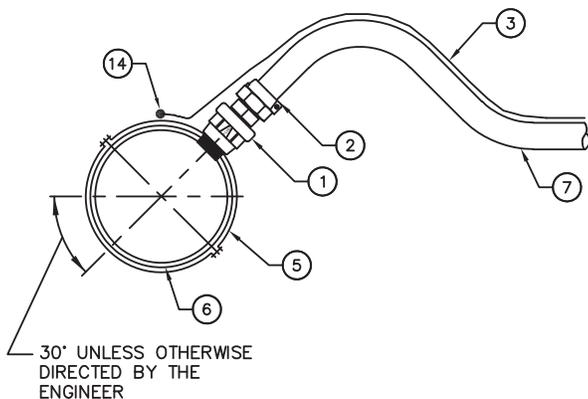
NOTES:

- (A) ALL PRODUCTS AS LISTED OR APPROVED EQUALS.
- (B) NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS TO BE USED.
- (C) 2" SERVICE PIPE: NO SPLICING ALLOWED. 200 PSI CTS POLY PIPE.
- (D) SADDLE COUPLINGS: USED FOR CONNECTION OF ALL SERVICE LINES TO PVC MAIN. SERVICE SADDLES: PAINTED SADDLE WITH STAINLESS STEEL DOUBLE BAND, ROMAC, STYLE 202S.
- (E) NO SERVICE CONNECTIONS WITHIN ONE FOOT OF THE PIPE ENDS. STAGGER MULTIPLE CONNECTIONS MADE ON THE SAME JOINT OF PIPE ALONG THE CIRCUMFERENCE AND SEPARATED BY A MINIMUM OF ONE FOOT.
- (F) DO NOT LOCATE 2" FIRE LINE VALVE AND BOX IN TRAFFIC AREAS.
- (G) MAXIMUM LENGTH OF 2" FIRE LINE MEASURED FROM MAIN LINE TO BACKFLOW PREVENTER IS 150' UNLESS OTHERWISE APPROVED BY THE CITY.
- (H) STAINLESS STEEL INSERTS SHALL BE USED, 50 SERIES FOR POLYETHYLENE TUBING, INSERT-55.
- (I) INSTALL LOCATE TAPE 12" ABOVE ENTIRE LENGTH OF SERVICE LINE.



ELEVATION VIEW

N.T.S.



KEYNOTES:

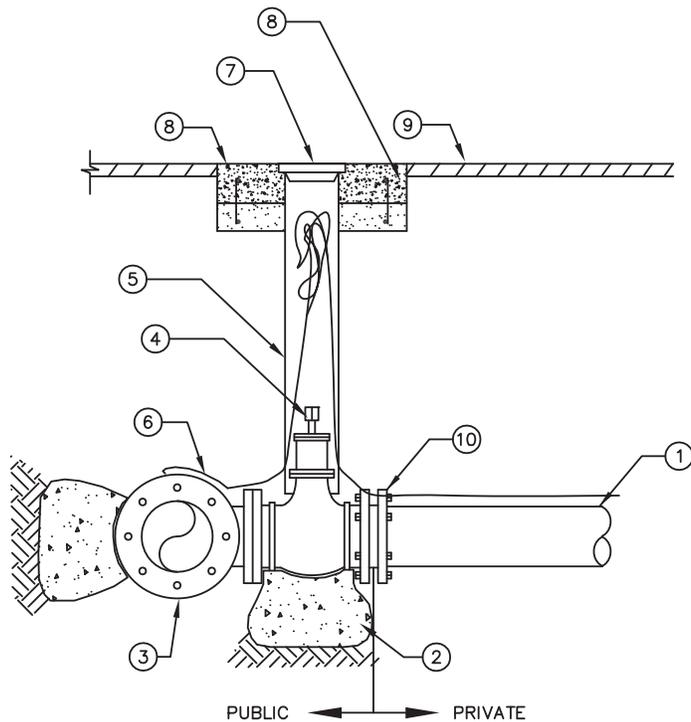
- (1) GRIP JOINT CORPORATION STOP, (2") FB1001-7-IDR7-NL, BALLCORP STYLE FOR CTS PE PIPE, OR APPROVED EQUAL.
- (2) STAINLESS STEEL STIFFENERS.
- (3) NO. 12 COPPER LOCATE WIRE. PROVIDE A MINIMUM OF 24" COILED LOCATE WIRE IN BOX.
- (4) (1) #4 REBAR HOOP
- (5) ROMAC PAINTED SADDLE WITH STAINLESS STEEL DOUBLE BAND, ROMAC 202S, OR APPROVED EQUAL.
- (6) WATER MAIN.
- (7) 2" SERVICE LINE, NO SPLICING ALLOWED. 200 PSI CTS POLY PIPE.
- (8) MIN. 12" RADIUS X 6" CONCRETE COLLAR.
- (9) TOP OF BINGHAM & TAYLOR 15" LONG 2-PIECE SCREW TYPE ADJUSTABLE 5 1/4" CAST IRON VALVE BOX NO. GRE5T55B (FIG. NO. 4905) OR APPROVE SUBSTITUTE.
- (10) HIGHLINE 20" ADJUSTABLE EXTENSION VALVE BOX NO. 111146 OR APPROVED SUBSTITUTE. USE ONLY AS NEEDED.
- (11) HIGHLINE 36" V.B. WHITE BOX BOTTOM SECTION NO. 111050 OR APPROVED SUBSTITUTE.
- (12) USA BLUEBOOK GATE BOX ALIGNER, NO. 75181 OR APPROVED SUBSTITUTE.
- (13) 2" GRIP JOINT COUPLING A.Y. McDONALD 74753G 2", 2" PACK JOINT COUPLING A.Y. McDONALD 74753-22 2", OR APPROVED EQUAL.
- (14) CONNECT WATER SERVICE LOCATE WIRE WITH WATER MAIN LOCATE WIRE WITH WATERPROOF SPLICE CONNECTOR.
- (15) TOP BACK OF SIDEWALK.

2020

CITY
OF
TWIN FALLS

2" FIRE LINE

STANDARD DRAWING
NO. TFSD-404A



FIRE LINE DETAIL
N.T.S.

NOTES:

- (A) ALL AUXILIARY VALVES TO BE LOCATED AT THE TEE ON THE WATER MAIN AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER. WHERE EXISTING FITTINGS ARE NOT COMPATIBLE WITH NEW MAIN CONSTRUCTION, USE SUITABLE ADAPTERS OR NEW FITTINGS UPON APPROVAL BY THE ENGINEER.
- (B) ALL ANCHORS AND BLOCKING TO BEAR AGAINST UNDISTURBED SOIL. PLACE LOCATOR WIRE DIRECTLY ABOVE PIPE. SECURE FINDER WIRE UNDER (MJ) BOLT AT MAIN.
- (C) JOINT RESTRAINT DEVICES MAY BE USED AS AN ALTERNATE TO THRUST BLOCK WITH CITY ENGINEER'S APPROVAL.
- (D) MAXIMUM LENGTH OF FIRE LINE MEASURED FROM MAIN LINE TO BACKFLOW PREVENTER IS 150' UNLESS OTHERWISE APPROVED BY THE CITY.

LEGEND

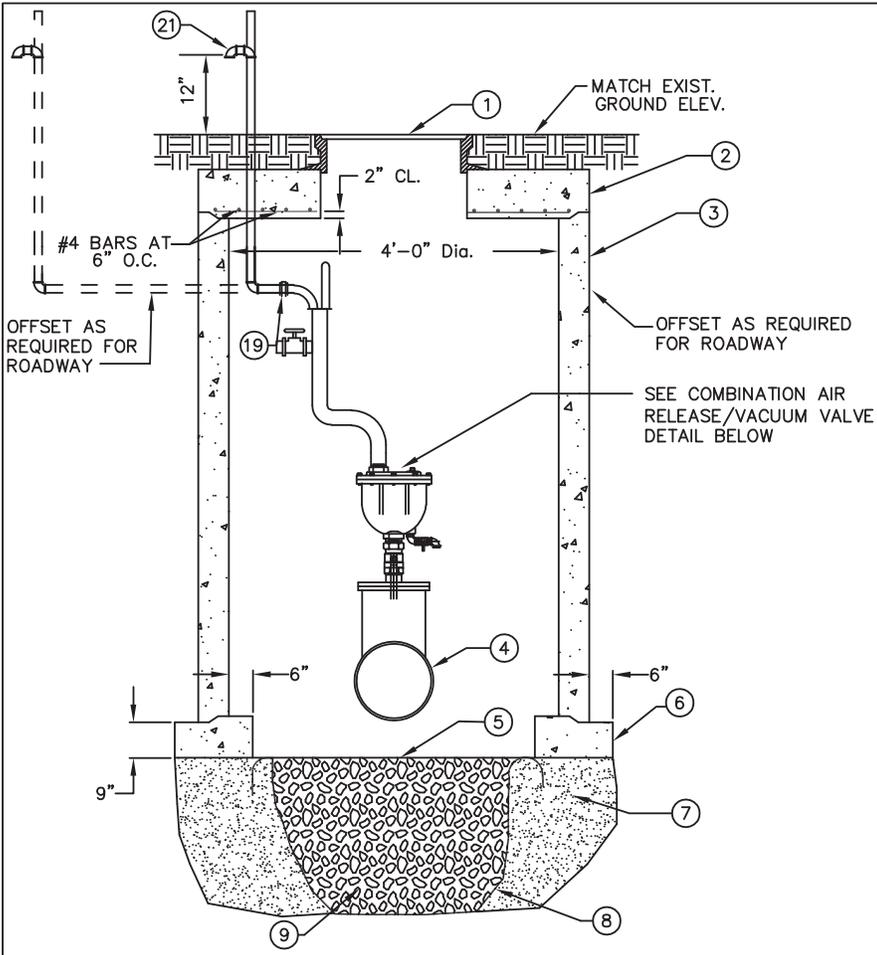
- ① SIZE OF FIRE LINE TO BE DETERMINED BY FIRE SUPPRESSION DESIGN AND ENGINEER WITH RESPONSIBLE CHARGE.
- ② VALVE SUPPORT (PRECAST OR CAST IN PLACE).
- ③ TEE (MJ X MJ X FLANGE) WITH THRUST BLOCK.
- ④ C.I. AUXILIARY VALVE (MJ X FLANGE). SIZE TO BE DETERMINED FROM SIZE OF FIRE LINE AND MAINLINE.
- ⑤ CAST IRON VALVE BOX.
- ⑥ NO. 12 AWG. COPPER WIRE FINDER. SEE SD-514 FOR SPLICING (SEE NOTE E).
- ⑦ 5 1/4" LID.
- ⑧ MIN 24"Ø X 12" CONCRETE COLLAR WITH (2) #4 REBAR HOOPS AND (4) #4 VERTICAL BARS.
- ⑨ FINISHED GRADE.
- ⑩ MECHANICAL CONNECTION.

2020

CITY
OF
TWIN FALLS

FIRE LINE
(4" OR GREATER)

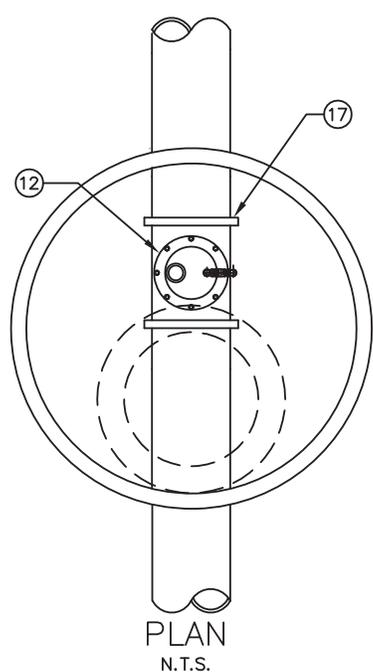
STANDARD DRAWING
NO. TFSD-404B



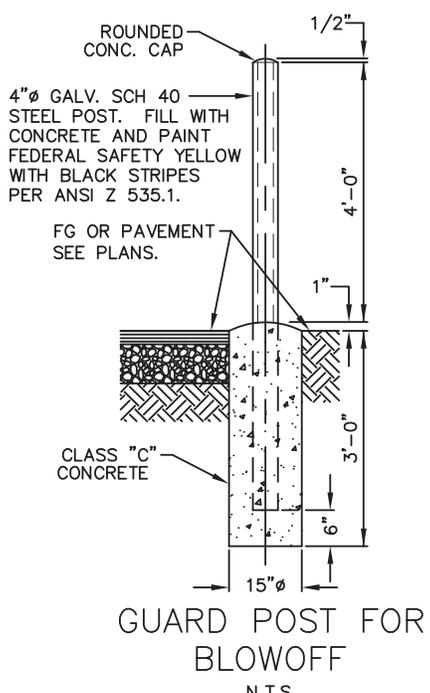
ELEVATION
N.T.S.

LEGEND

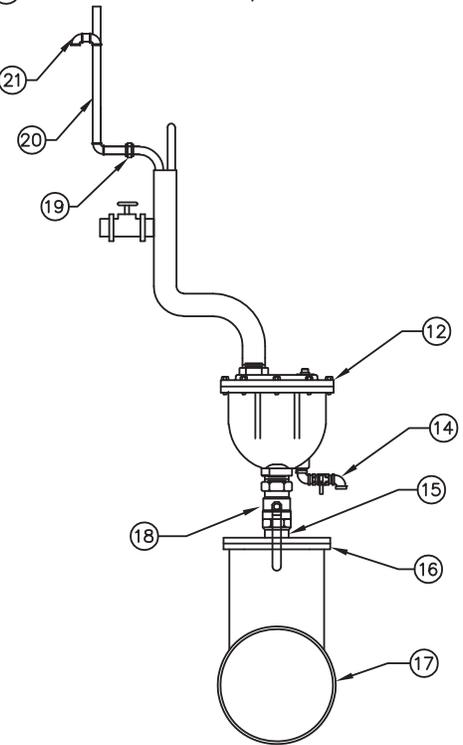
- ① CAST IRON RING AND COVER MARKED "WATER" PER TFSD-507.
- ② STANDARD MANHOLE SLAB.
- ③ MANHOLE TYPE "A" PER TFSD-501.
- ④ WATER PIPE.
- ⑤ VOLUME OF ROCK TO BE 15 CUBIC FEET MINIMUM.
- ⑥ CONCRETE FOOTING.
- ⑦ COMPACTED TYPE 1 BEDDING.
- ⑧ DRAIN ROCK ABSORPTION SUMP WITH GEOTEXTILE FABRIC.
- ⑨ 2" MINUS WASHED DRAIN ROCK.
- ⑩ NOT USED.
- ⑪ NOT USED.
- ⑫ APCO COMBINATION AIR RELEASE / VACUUM VALVE OR APPROVED SUBSTITUTE SIZED FOR APPLICATION.
- ⑬ NOT USED.
- ⑭ DRAIN VALVE.
- ⑮ THREADED CONNECTION.
- ⑯ BLIND FLANGE TAPPED FOR IPT NIPPLE.
- ⑰ CAST IRON FLANGED X FLANGED TEE.
- ⑱ INLET SHUT-OFF VALVE.
- ⑲ FLANGE OR UNION.
- ⑳ BRASS NIPPLE OR C.I. SPOOL DISCHARGE PIPE. SIZE AS SHOWN ON PLANS.
- ㉑ COMPANION FLANGE W/BUG SCREEN.



PLAN
N.T.S.



GUARD POST FOR BLOWOFF
N.T.S.



AIR RELEASE AND VACUUM VALVE DETAIL
N.T.S.

NOTE:
A USE GALVANIZED STEEL FOR PIPE AND NIPPLES AND GALVANIZED MALLEABLE FITTINGS.

NOTE: PROVIDE 3/8" EJ MATERIAL WHERE INSTALLED IN CONC PAVING.

2020

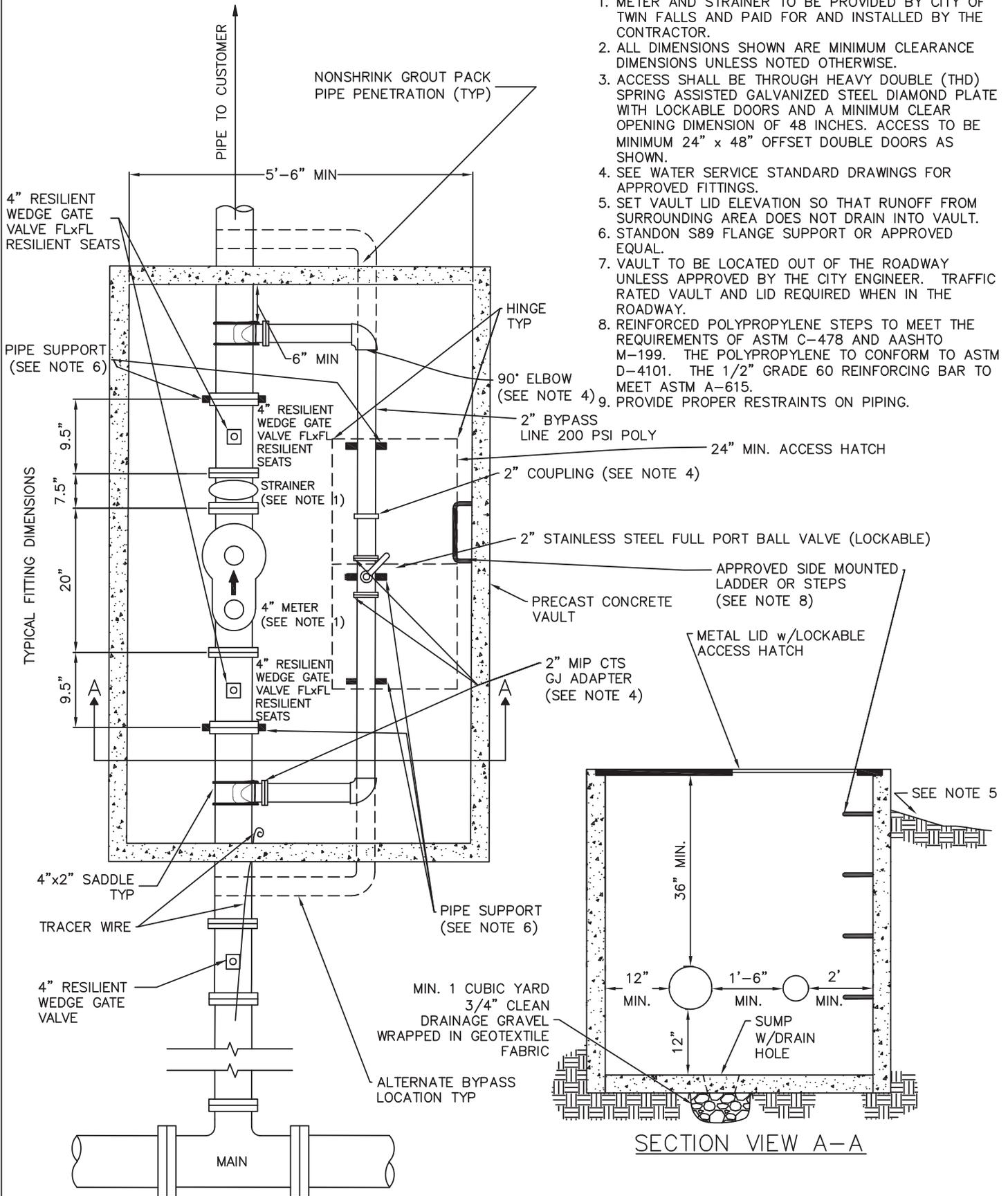
CITY OF TWIN FALLS

COMBINATION AIR RELEASE/VACUUM VALVE

STANDARD DRAWING NO. TFSD-408A

LEGEND:

1. METER AND STRAINER TO BE PROVIDED BY CITY OF TWIN FALLS AND PAID FOR AND INSTALLED BY THE CONTRACTOR.
2. ALL DIMENSIONS SHOWN ARE MINIMUM CLEARANCE DIMENSIONS UNLESS NOTED OTHERWISE.
3. ACCESS SHALL BE THROUGH HEAVY DOUBLE (THD) SPRING ASSISTED GALVANIZED STEEL DIAMOND PLATE WITH LOCKABLE DOORS AND A MINIMUM CLEAR OPENING DIMENSION OF 48 INCHES. ACCESS TO BE MINIMUM 24" x 48" OFFSET DOUBLE DOORS AS SHOWN.
4. SEE WATER SERVICE STANDARD DRAWINGS FOR APPROVED FITTINGS.
5. SET VAULT LID ELEVATION SO THAT RUNOFF FROM SURROUNDING AREA DOES NOT DRAIN INTO VAULT.
6. STANCON S89 FLANGE SUPPORT OR APPROVED EQUAL.
7. VAULT TO BE LOCATED OUT OF THE ROADWAY UNLESS APPROVED BY THE CITY ENGINEER. TRAFFIC RATED VAULT AND LID REQUIRED WHEN IN THE ROADWAY.
8. REINFORCED POLYPROPYLENE STEPS TO MEET THE REQUIREMENTS OF ASTM C-478 AND AASHTO M-199. THE POLYPROPYLENE TO CONFORM TO ASTM D-4101. THE 1/2" GRADE 60 REINFORCING BAR TO MEET ASTM A-615.
9. PROVIDE PROPER RESTRAINTS ON PIPING.



2020

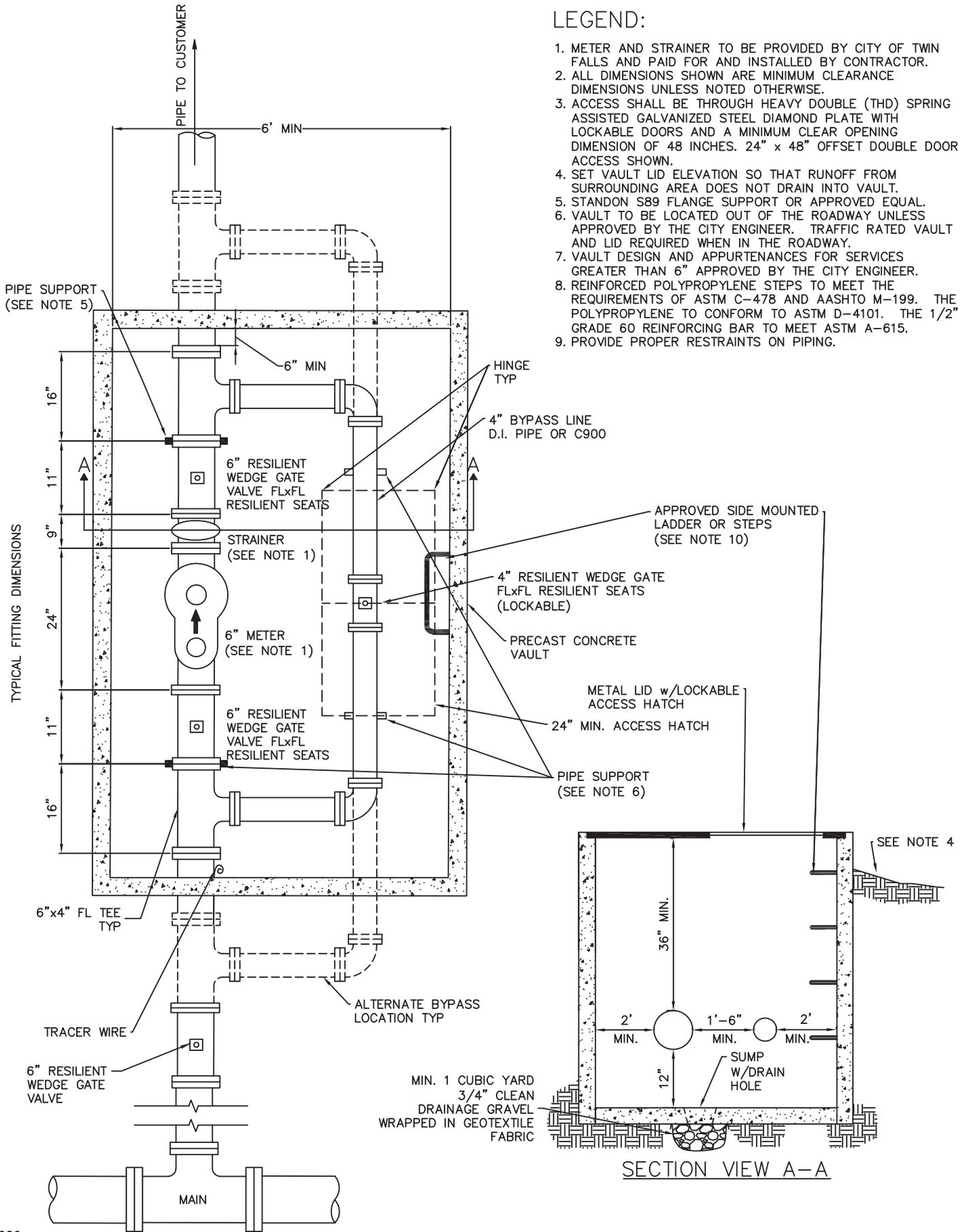
CITY OF TWIN FALLS

4" WATER METER VAULT

STANDARD DRAWING NO. TFSD-409

LEGEND:

1. METER AND STRAINER TO BE PROVIDED BY CITY OF TWIN FALLS AND PAID FOR AND INSTALLED BY CONTRACTOR.
2. ALL DIMENSIONS SHOWN ARE MINIMUM CLEARANCE DIMENSIONS UNLESS NOTED OTHERWISE.
3. ACCESS SHALL BE THROUGH HEAVY DOUBLE (THD) SPRING ASSISTED GALVANIZED STEEL DIAMOND PLATE WITH LOCKABLE DOORS AND A MINIMUM CLEAR OPENING DIMENSION OF 48 INCHES. 24" x 48" OFFSET DOUBLE DOOR ACCESS SHOWN.
4. SET VAULT LID ELEVATION SO THAT RUNOFF FROM SURROUNDING AREA DOES NOT DRAIN INTO VAULT.
5. STANCON S89 FLANGE SUPPORT OR APPROVED EQUAL.
6. VAULT TO BE LOCATED OUT OF THE ROADWAY UNLESS APPROVED BY THE CITY ENGINEER. TRAFFIC RATED VAULT AND LID REQUIRED WHEN IN THE ROADWAY.
7. VAULT DESIGN AND APPURTENANCES FOR SERVICES GREATER THAN 6" APPROVED BY THE CITY ENGINEER.
8. REINFORCED POLYPROPYLENE STEPS TO MEET THE REQUIREMENTS OF ASTM C-478 AND AASHTO M-199. THE POLYPROPYLENE TO CONFORM TO ASTM D-4101. THE 1/2" GRADE 60 REINFORCING BAR TO MEET ASTM A-615.
9. PROVIDE PROPER RESTRAINTS ON PIPING.

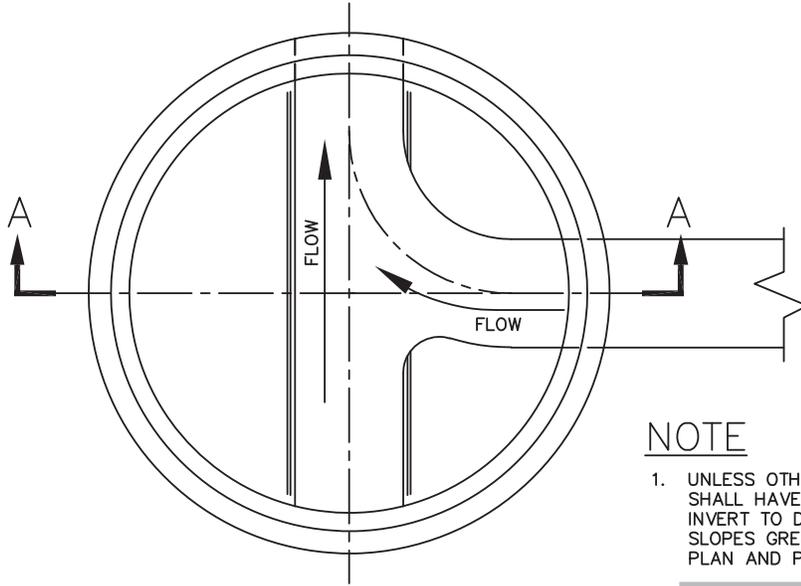


2020

CITY OF TWIN FALLS

6" WATER METER VAULT

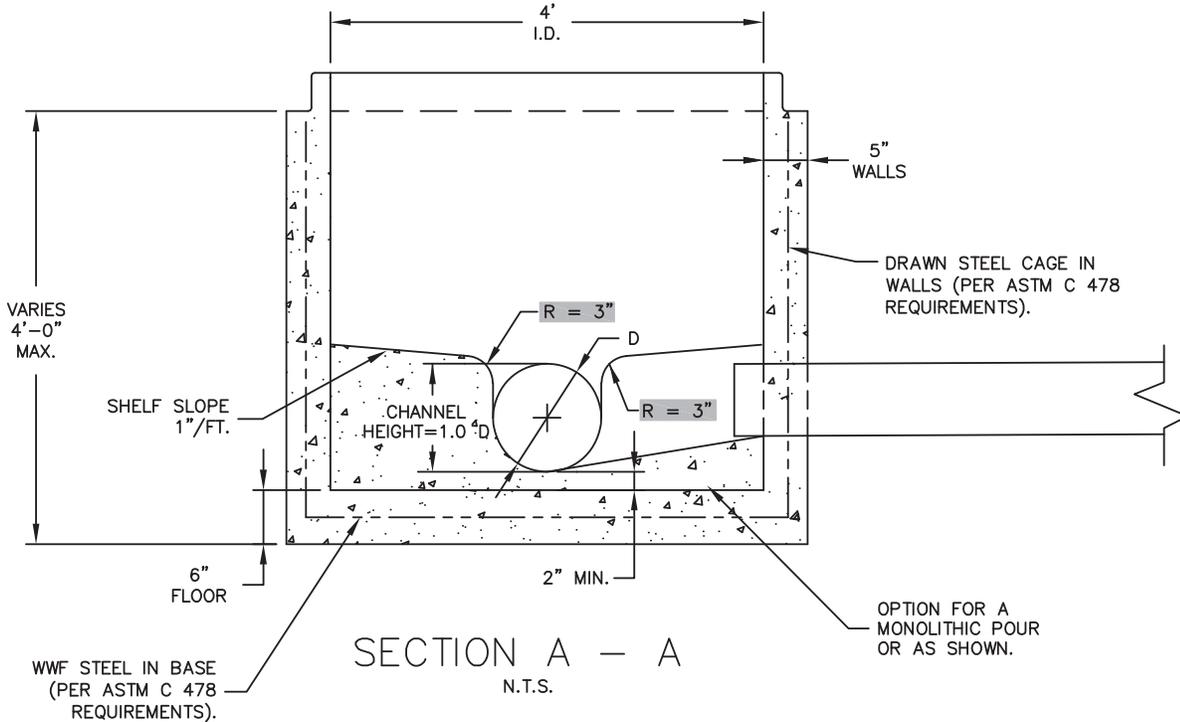
STANDARD DRAWING NO. TFSD-410



PLAN VIEW
48" ID CHANNELLED BASE
N.T.S.

NOTE

1. UNLESS OTHERWISE SHOWN, MANHOLES SHALL HAVE 0.1 FT FALL FROM UPSTREAM INVERT TO DOWNSTREAM INVERT. FOR PIPE SLOPES GREATER THAN 2.5% SLOPE, SEE PLAN AND PROFILE.
2. IF THE CROWN OF THE LATERAL IS 12" HIGHER THAN THE CROWN OF THE TRUNK, NOTIFY CITY ENGINEER FOR APPROVAL
3. THE MINIMUM INVERT ELEVATION FOR STUB-OUTS AND LATERAL CONNECTIONS SHALL BE AT THE CENTERLINE ELEVATION OF THE MAINLINE PIPE OR AT THE ELEVATION WHICH MATCHES THE TOP OF THE LATERAL WITH THE TOP OF THE MAINLINE PIPE, WHICHEVER IS HIGHER.



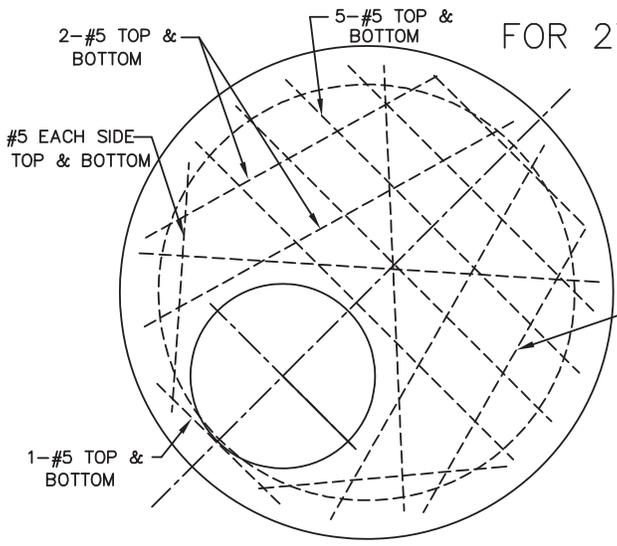
SECTION A - A
N.T.S.

2020

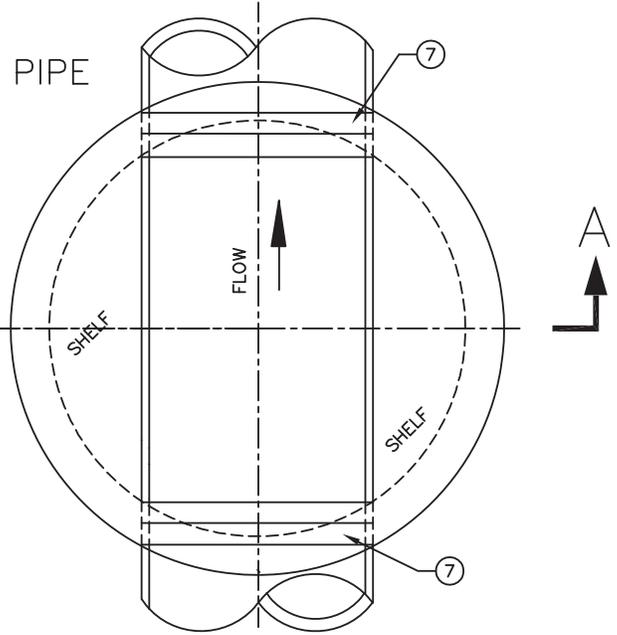
CITY
OF
TWIN FALLS

STANDARD MANHOLE
PRECAST BASE TYPE A

STANDARD DRAWING
NO. **TF**SD-501A



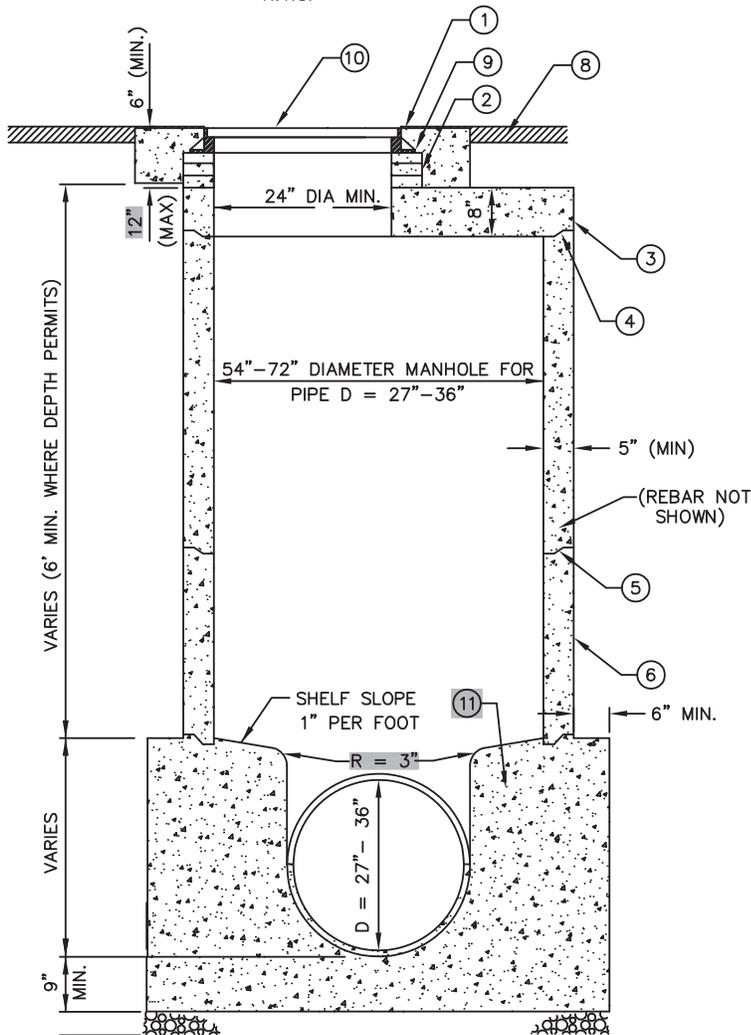
FOR 27" - 36" PIPE ONLY



STANDARD SLAB TOP DETAILS

N.T.S.

PLAN
N.T.S.



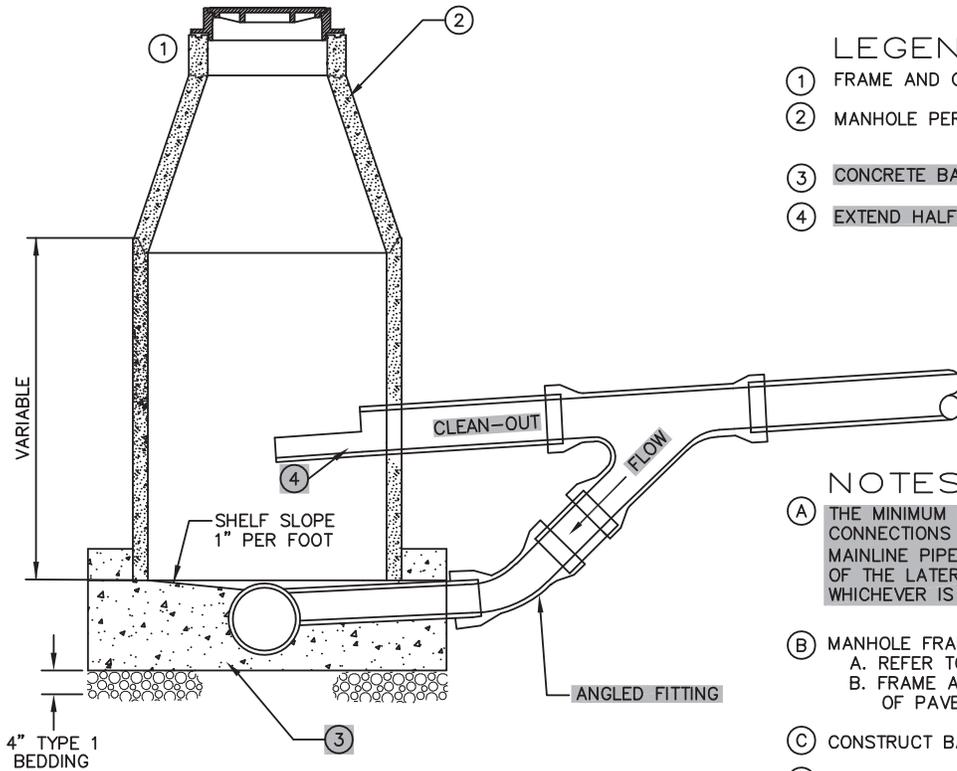
SECTION A-A
N.T.S.

LEGEND

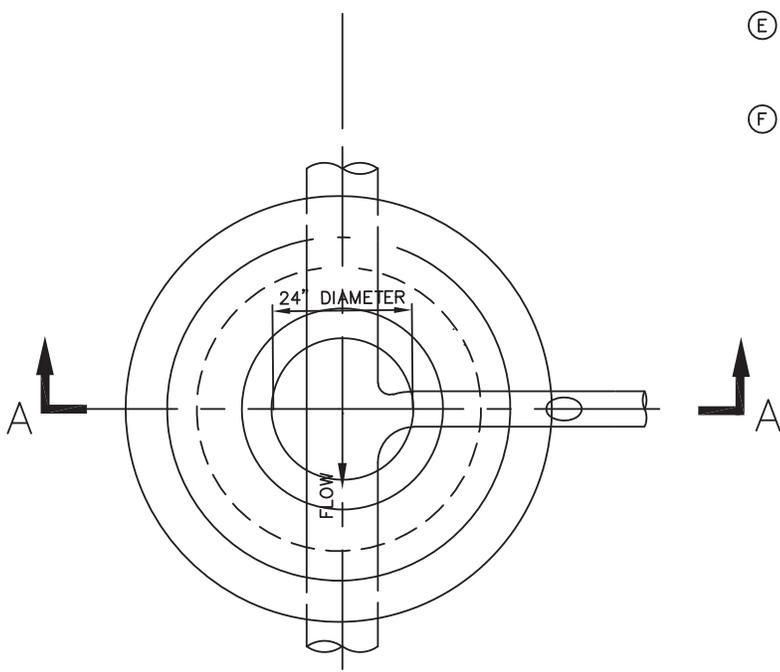
- ① CONCRETE COLLAR IN PAVED AND GRAVEL AREAS PER TFSD-508.
- ② GRADE RINGS GROUT WATERTIGHT IN PLACE, NOT TO EXCEED 12" FROM FINISHED SURFACE TO TOP OF CONE.
- ③ REINFORCED CONCRETE REDUCER SLAB OR CONE.
- ④ RAMNEK OR APPROVED GASKET AT ALL JOINTS.
- ⑤ PROPERLY ALIGN ALL INTERIOR JOINTS.
- ⑥ PRECAST CONCRETE MANHOLE BARREL SECTION (REBAR NOT SHOWN), 54"-72" RCP.
- ⑦ PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR-FLEXIBLE AND WATER TIGHT.
- ⑧ REPLACEMENT SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AC SHOWN).
- ⑨ SEAL FRAME TO GRADE RINGS WITH RAM-NEK GASKET.
- ⑩ FRAME AND COVER PER TFSD-507 OR TFSD-507A.
- ⑪ CAST-IN-PLACE MANHOLE BASE. SEE SD-502A FOR PREFABRICATED BASE.

NOTES:

- (A) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SD-502A.
- (B) PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- (C) THE MINIMUM INVERT ELEVATION FOR STUB-OUTS AND LATERAL CONNECTIONS SHALL BE AT THE CENTERLINE ELEVATION OF THE MAINLINE PIPE OR AT THE ELEVATION WHICH MATCHES THE TOP OF THE LATERAL WITH THE TOP OF THE MAINLINE PIPE, WHICHEVER IS HIGHER.
- (D) MANHOLE FRAME AND COVER:
A. REFER TO DRAWING NO. TFSD-507 (24" OPENING) OR TFSD-508 (30" OPENING).
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
- (E) WHERE PVC IS PIPE UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
- (F) PROVIDE FRAMES, COVERS, AND MANHOLE CONCRETE REINFORCING TO ACCOMMODATE H-20 TRAFFIC LOADINGS.
- (G) UNLESS OTHERWISE SHOWN, MANHOLES SHALL HAVE 0.1 FT FALL FROM UPSTREAM TRUNK INVERT TO DOWNSTREAM TRUNK INVERT.



SECTION A-A
N.T.S.



PLAN
N.T.S.

LEGEND

- ① FRAME AND COVER PER STANDARD DRAWING TFSD-507.
- ② MANHOLE PER STANDARD DRAWING TFSD-501 OR TFSD-502
- ③ CONCRETE BASE CAST IN PLACE PER SECTION 703.
- ④ EXTEND HALF PIPE DIAMETER INTO MANHOLE A MINIMUM OF 12".

NOTES:

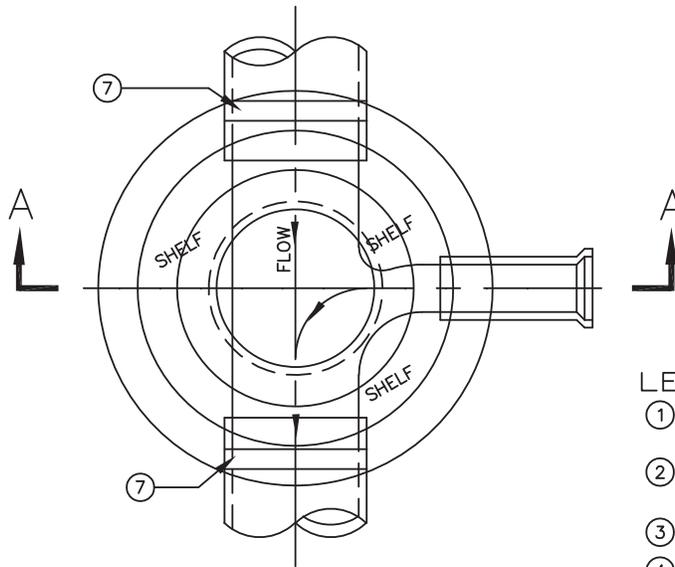
- (A) THE MINIMUM INVERT ELEVATION FOR STUB-OUTS AND LATERAL CONNECTIONS SHALL BE AT THE CENTERLINE ELEVATION OF THE MAINLINE PIPE OR AT THE ELEVATION WHICH MATCHES THE TOP OF THE LATERAL WITH THE TOP OF THE MAINLINE PIPE, WHICHEVER IS HIGHER.
- (B) MANHOLE FRAME AND COVER
A. REFER TO STANDARD DRAWING TFSD-507.
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
- (C) CONSTRUCT BASIC MANHOLE PER TYPE SPECIFIED.
- (D) WHERE PVC PIPE IS UTILIZED, A RUBBER RING OR GASKETED COLLAR IS TO BE INSTALLED WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
- (E) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEER'S APPROVAL, SEE TFSD-501A.
- (F) PROVIDE MANHOLE CONCRETE REINFORCING TO ACCOMMODATE TRAFFIC LOADINGS.

2020

CITY OF TWIN FALLS

DROP MANHOLE

STANDARD DRAWING NO. TFSD-504



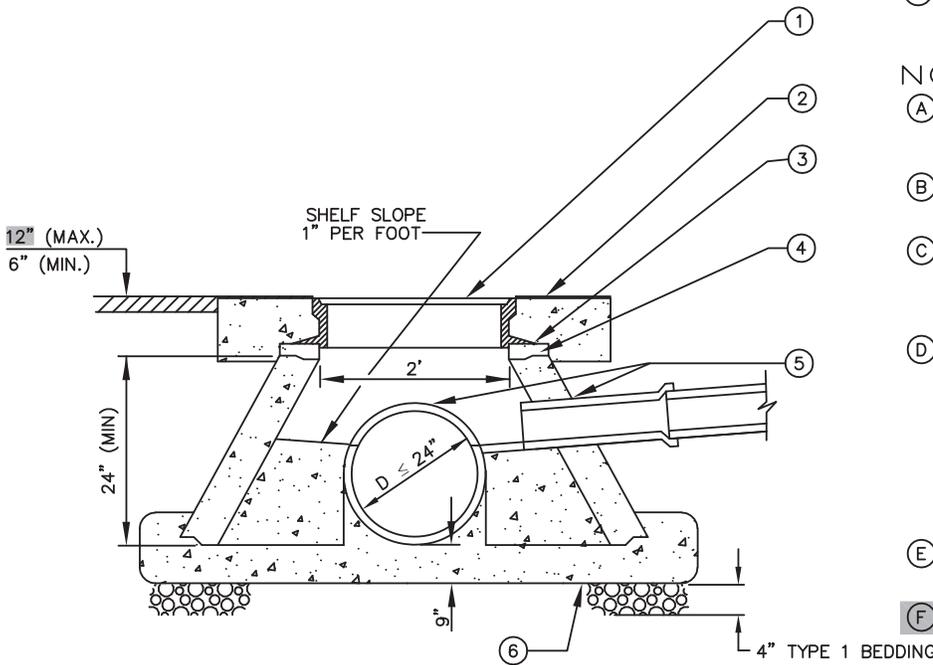
PLAN
N.T.S.

LEGEND

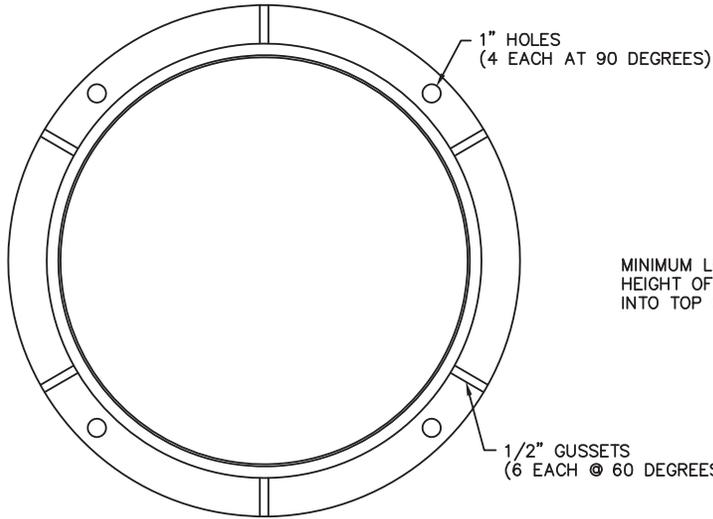
- ① FRAME AND COVER PER STANDARD DRAWING TFSD-507.
- ② CONCRETE COLLAR IN PAVED SECTIONS PER TFSD-508.
- ③ FRAME TO BE GROUTED TO GRADE RINGS.
- ④ GRADE RINGS GROUTED IN PLACE.
- ⑤ CORE-DRILL THROUGH PRECAST SECTION.
- ⑥ CAST IN PLACE OR PRECAST CONCRETE BASE.
- ⑦ PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR-FLEXIBLE AND WATER TIGHT.

NOTES:

- (A) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE TFSD-501A.
- (B) FOR DIAMETER, D, GREATER THAN 24", SEE TFSD-502" STANDARD MANHOLE TYPE B".
- (C) MANHOLE FRAME AND COVER:
A. REFER TO DRAWING NO. TFSD-507.
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
- (D) WHERE PVC PIPE IS UTILIZED, A RUBBER RING OR GASKET COLLAR IS TO BE INSTALLED WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL. EXTEND PIPE SUFFICIENTLY INSIDE MANHOLE TO ALLOW FOR GROUT SEAL OF PIPES ENTERING THE BARREL. SEE 502.3.3E.
- (E) PROVIDE MANHOLE CONCRETE REINFORCING TO ACCOMMODATE TRAFFIC LOADING.
- (F) THIS MANHOLE IS ONLY ALLOWED WITH WRITTEN PERMISSION BY THE CITY ENGINEER.

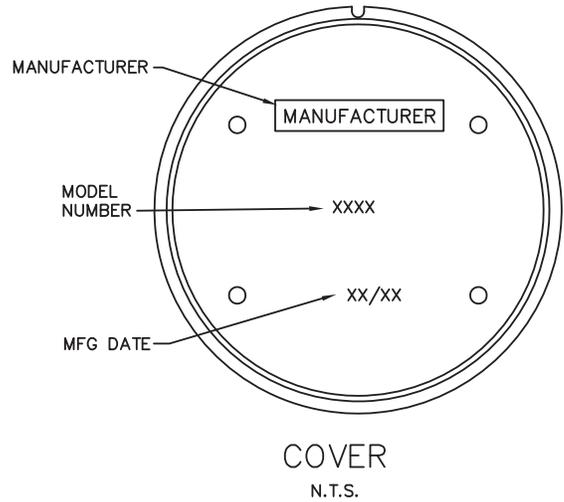
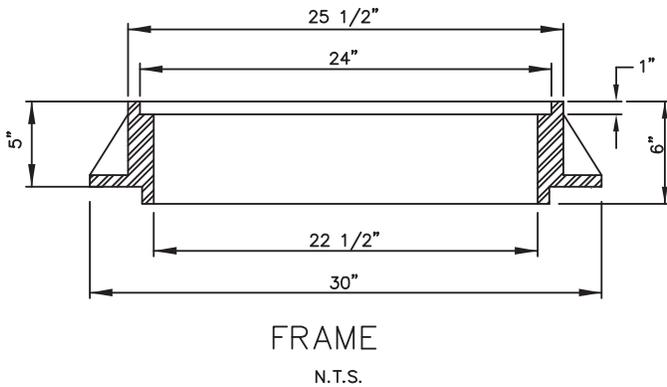
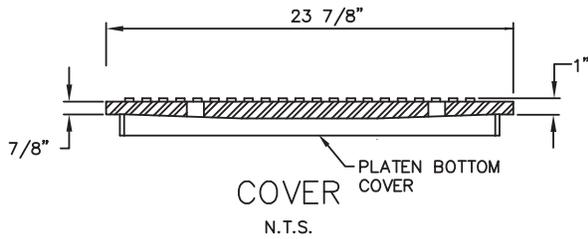
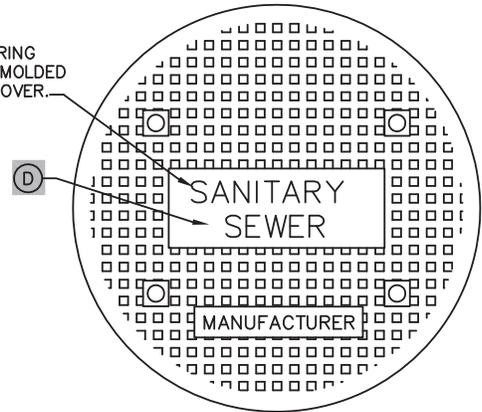


SECTION A-A
≥ 30" DEEP AND ≤ 48" DEEP
N.T.S.



PLAN
N.T.S.

MINIMUM LETTERING
HEIGHT OF 1", MOLDED
INTO TOP OF COVER.



NOTE: ISPWC USES 1" LID THICKNESS FOR NEW CONSTRUCTION.
VERIFY FRAME DIMENSIONS PRIOR TO PURCHASING REPLACEMENT
LIDS FOR EXISTING FACILITIES.

NOTES:

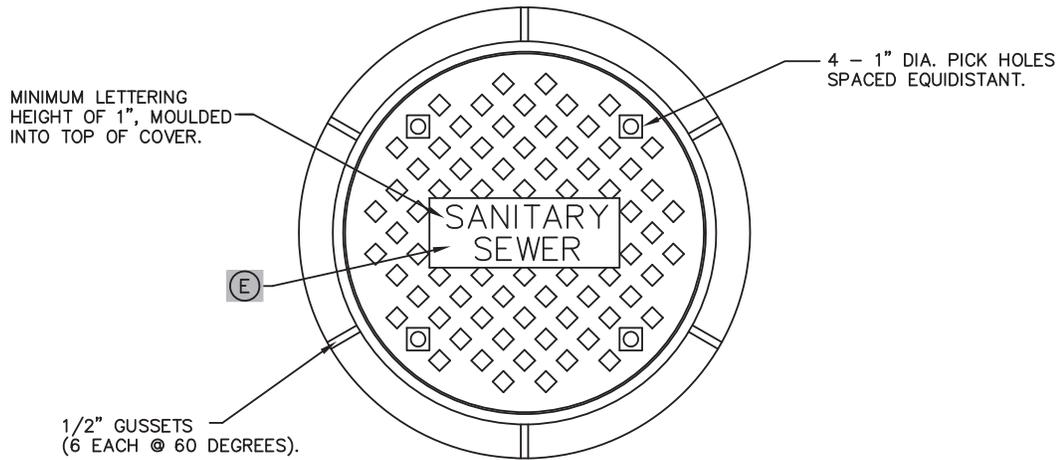
- (A) MANHOLE FRAMES AND COVERS TO HAVE A TOLERANCE OF 1/4" OR LESS.
- (B) COVERS NOT TO BE WARPED. REPLACE ALL THAT RATTLE OR VIBRATE WHEN TRAVELED UPON. MACHINE ALL MATCHING SURFACES.
- (C) MINIMUM WEIGHT OF FRAME AND COVER = 265 LBS.
- (D) LABEL ON MANHOLE COVERS TO MATCH USE: SANITARY SEWER, STORM SEWER, FIBER OPTIC, ETC.

2020

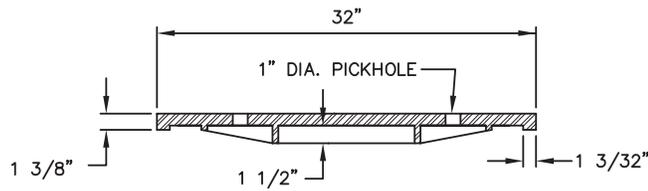
CITY
OF
TWIN FALLS

STANDARD MANHOLE
COVER AND FRAME

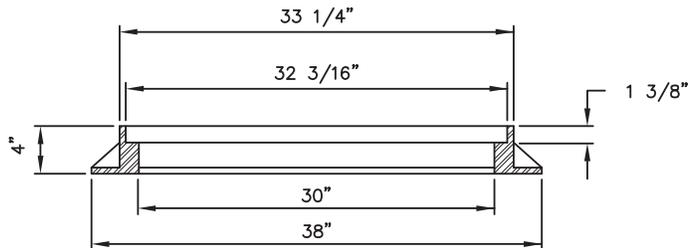
STANDARD DRAWING
NO. TFSD-507



PLAN
N.T.S.



COVER
N.T.S.



FRAME
N.T.S.

NOTES:

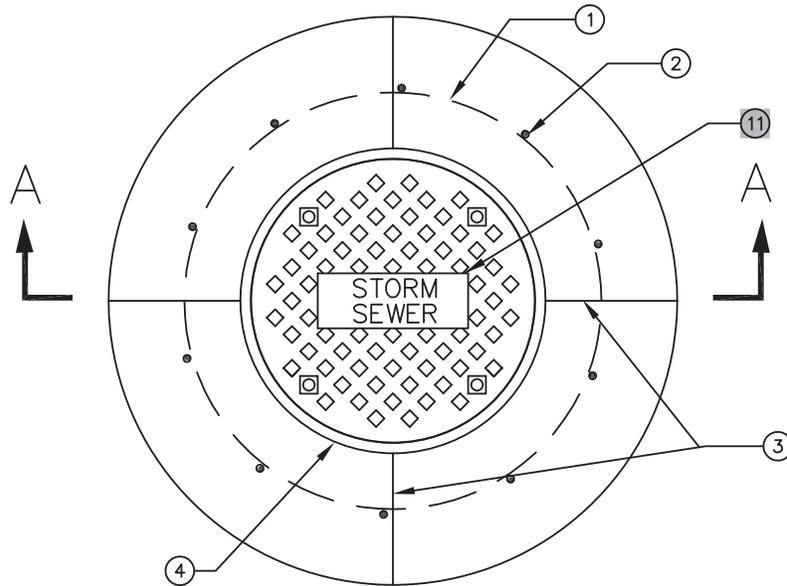
- (A) MANHOLE FRAMES AND COVERS TO HAVE A TOLERANCE OF 1/4" OR LESS.
- (B) COVERS NOT TO BE WARPED. REPLACE ALL THAT RATTLE OR VIBRATE WHEN TRAVELED UPON. MACHINE ALL MATCHING SURFACES.
- (C) MINIMUM WEIGHT OF FRAME AND COVER = 400 LBS.
- (D) USE ONLY WITH WRITTEN PERMISSION OF THE CITY ENGINEER.
- (E) LABEL ON MANHOLE COVERS TO MATCH USE: SANITARY SEWER, STORM SEWER, FIBER OPTIC, ETC.

2020

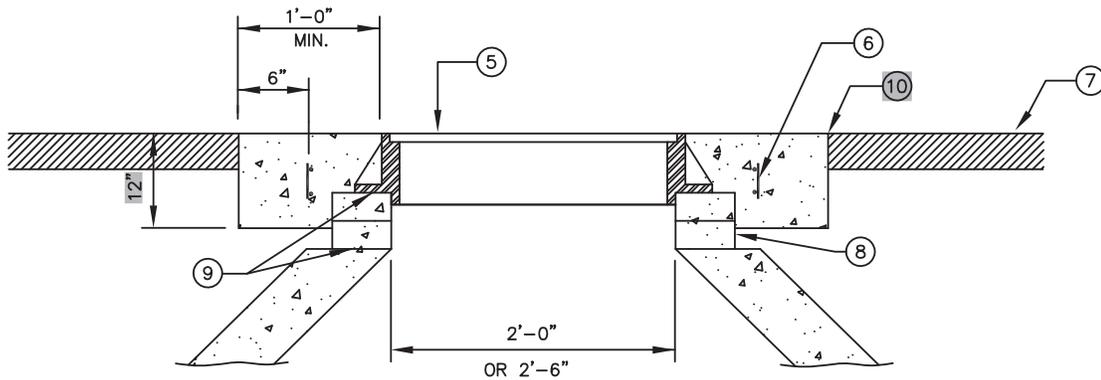
CITY
OF
TWIN FALLS

MANHOLE COVER
AND FLAT FRAME

STANDARD DRAWING
NO. **TF**SD-507A



PLAN
N.T.S.



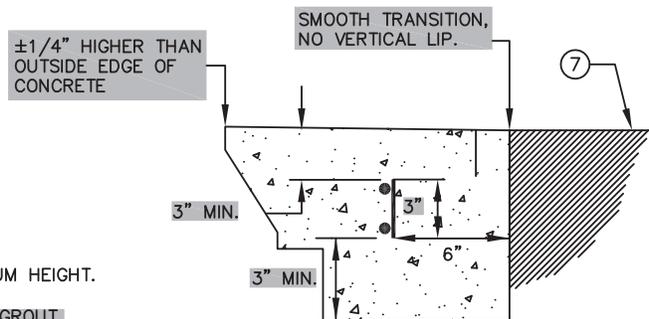
SECTION A-A
N.T.S.

NOTE:

- (A) TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.

LEGEND

- (1) #4 REBAR HOOPS (2 EACH) SEE SECTION A-A.
- (2) #4 REBAR AT 20" SPACING.
- (3) SCORES.
- (4) RIM.
- (5) FRAME AND COVER PER TFSD-507 AND TFSD-507A.
- (6) SEE "DETAIL A" FOR REBAR IN COLLAR.
- (7) FINISHED GRADE.
- (8) SEE OTHER STANDARD DRAWINGS OF MANHOLES FOR MAXIMUM HEIGHT.
- (9) JOINTS SHALL BE SEALED WITH RAM-NEK (OR EQUAL) AND GROUT ON THE INSIDE.
- (10) CRACK SEAL AROUND MANHOLE COLLAR.
- (11) FRAME AND COVER PER STANDARD DRAWING TFSD-507 AND TFSD-507A.



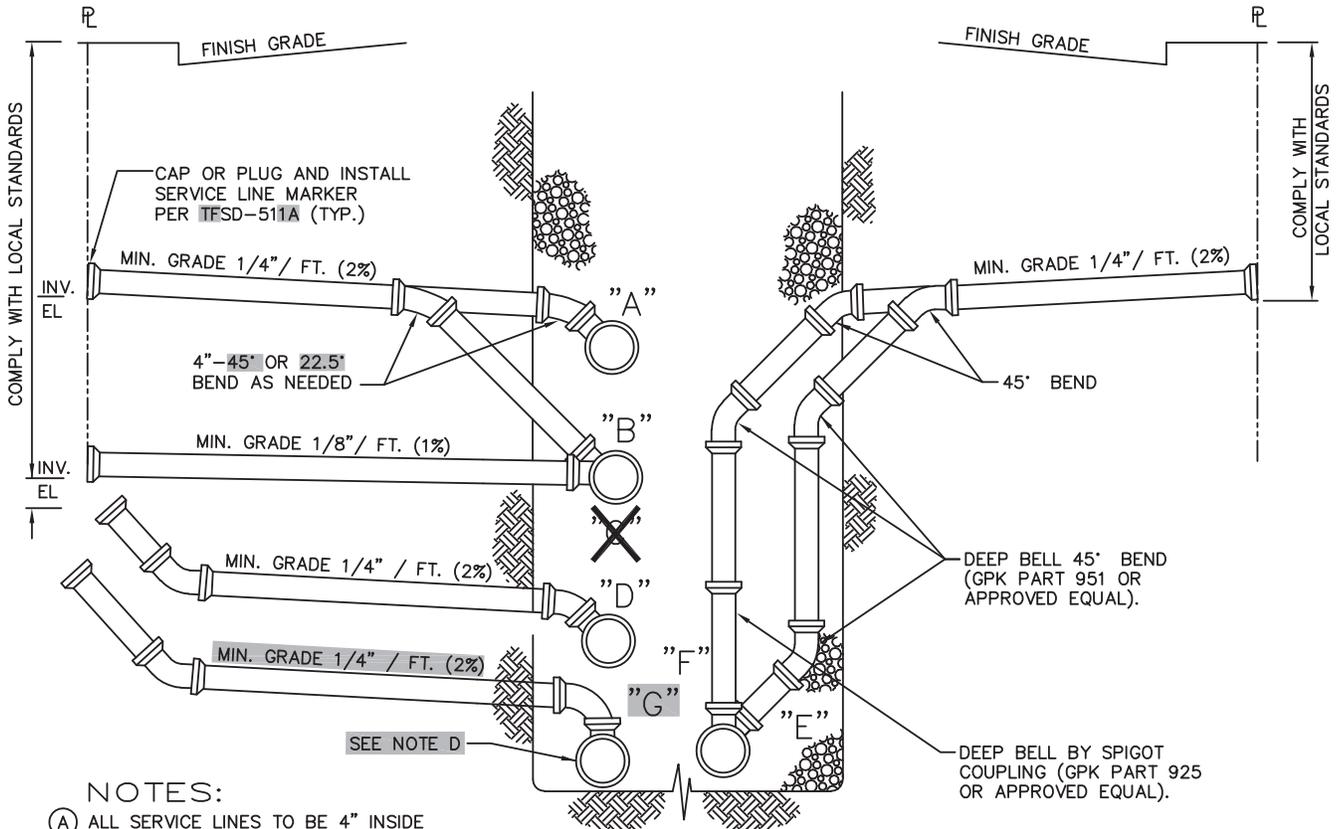
DETAIL A
N.T.S.

2020

CITY
OF
TWIN FALLS

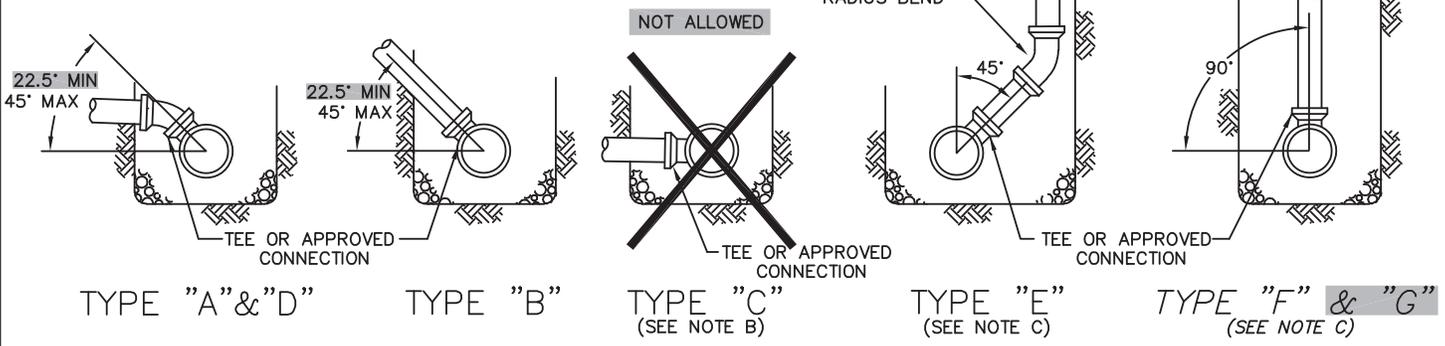
MANHOLE
COLLAR

STANDARD DRAWING
NO. TFSD-508



- NOTES:**
- (A) ALL SERVICE LINES TO BE 4" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
 - (B) TYPE "C" CONNECTION WILL ONLY BE ALLOWED IF APPROVED BY THE CITY ENGINEER.
 - (C) TYPE "E" OR "F" ALLOWABLE FOR TRENCHES 15' DEEP OR GREATER WITH PRE-APPROVAL BY THE CITY ENGINEER.
 - (D) FOR MAIN LINES 10" OR LARGER MUST USE TYPE "G".

ELEVATIONS
N.T.S.



CONNECTION DETAILS
N.T.S.

2020

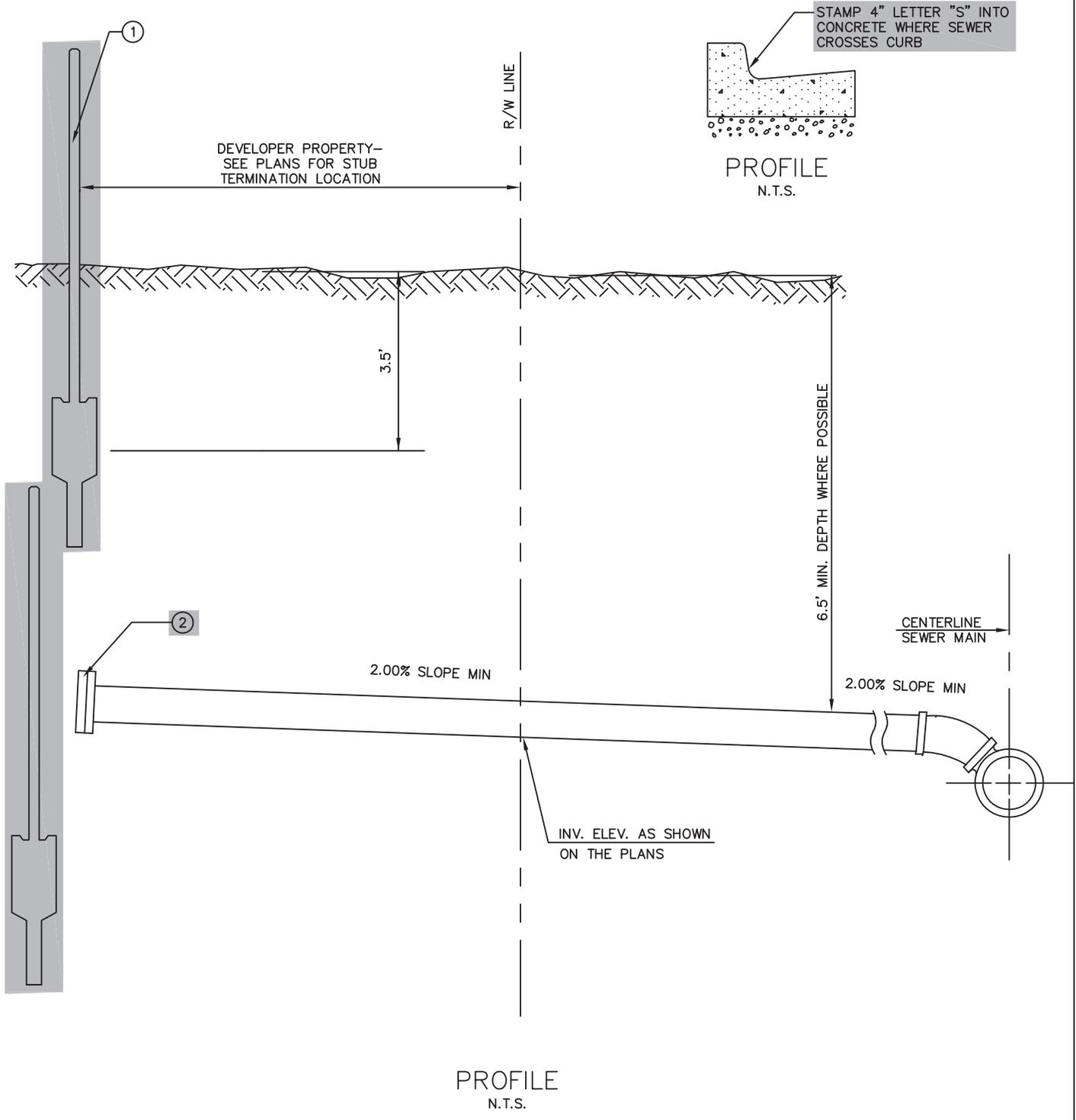
CITY OF TWIN FALLS

STANDARD SEWER SERVICE LINE

STANDARD DRAWING NO. **TFSD-511**

LEGEND

- ① 2 STEEL "T" POST FENCE MARKERS.
- ② WATER-TIGHT PLUG OR CAP.

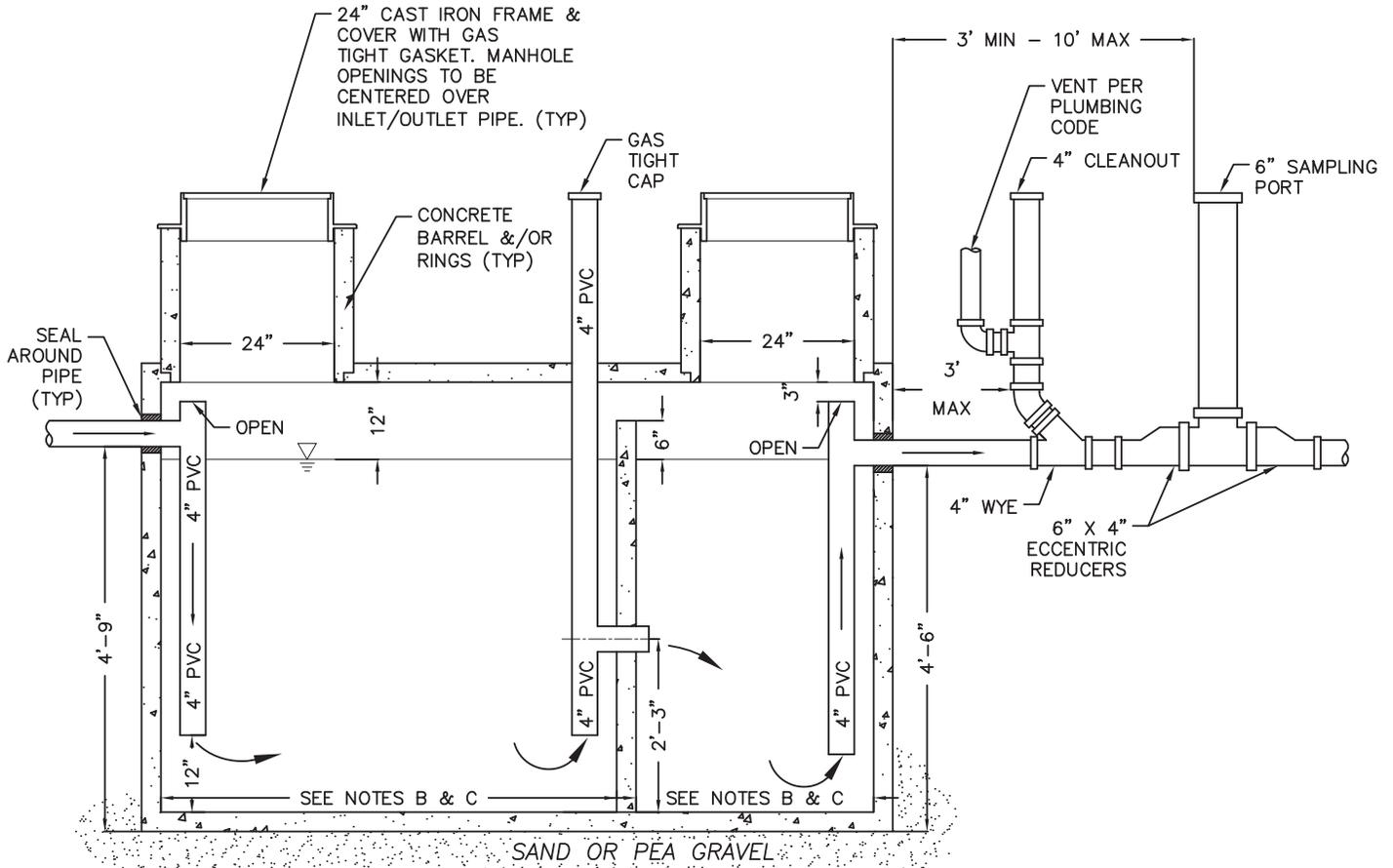


2020

CITY
OF
TWIN FALLS

STANDARD SEWER SERVICE
CONNECTION FOR NEW
DEVELOPMENT PROJECTS

STANDARD DRAWING
NO. **TF**SD-511A



PROFILE

N.T.S

NOTES:

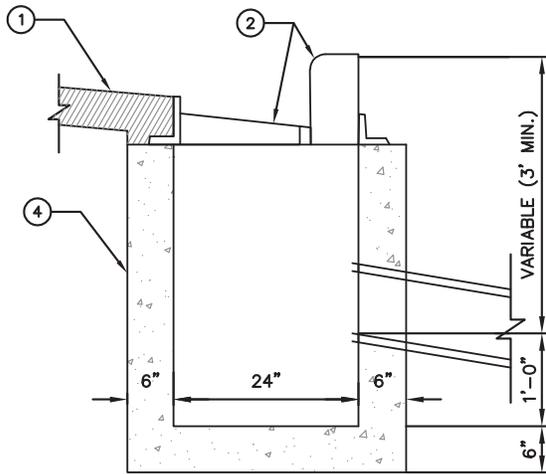
- (A) THE GREASE INTERCEPTOR SHALL MEET THE REQUIREMENTS OF THE IDAHO PLUMBING CODE.
- (B) THE GREASE INTERCEPTOR SHALL NOT HAVE A VOLUME LESS THAN 1,000 GALLONS.
- (C) THE INLET TANK VOLUME SHALL BE 2/3 OF THE TOTAL CAPACITY OF THE INTERCEPTOR.
- (D) ALL PIPE SIZE SHALL BE A MINIMUM 4" DIAMETER, UNLESS OTHERWISE SPECIFIED.
- (E) GREASE INTERCEPTOR STRUCTURE AND APPURTENANCES SHALL BE H-20 TRAFFIC RATED IF USED IN TRAFFIC OR PARKING AREA.
- (F) WALLS SHALL BE A MINIMUM OF 3" THICK.
- (G) CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
- (H) INTERNAL PIPING SHALL BE BRACED. ALL BRACKETS, NUTS, & BOLTS SHALL BE STAINLESS STEEL.
- (I) TANKS SHALL BE PERMANENTLY & LEGIBLY MARKED WITH MANUFACTURER'S NAME, MODEL & DATE.
- (J) GREASE INTERCEPTOR SHALL BE PLACED AS CLOSE AS PRACTICAL TO THE FIXTURES BEING SERVED AND AWAY FROM THE MAIN DOOR TO THE BUILDING.

2020

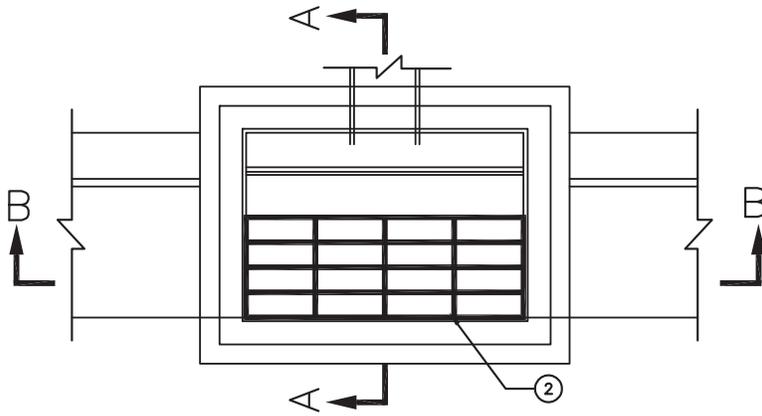
CITY
OF
TWIN FALLS

GREASE
INTERCEPTOR

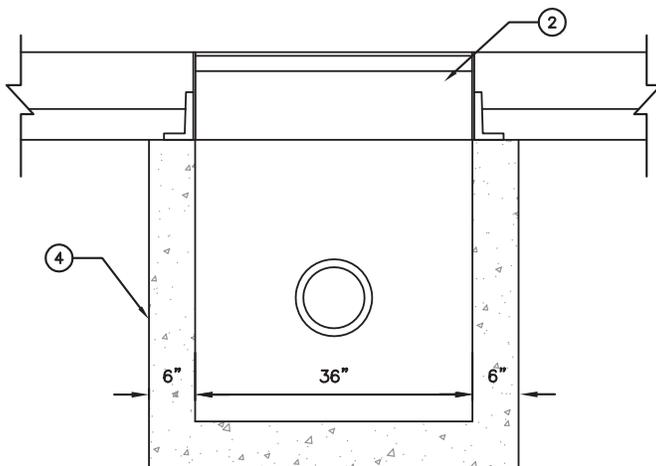
STANDARD DRAWING
NO. TFSD-516



SECTION A-A
N.T.S.



PLAN
N.T.S.



SECTION B-B
N.T.S.

LEGEND

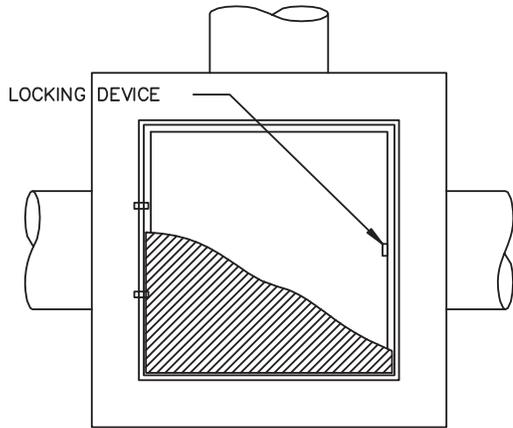
- ① PAVEMENT SURFACE.
- ② D&L SUPPLY I-3516 OR APPROVED EQUAL.
- ③ INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- ④ PRECAST CATCH BASIN TO BE H-20 TRAFFIC RATED.

2020

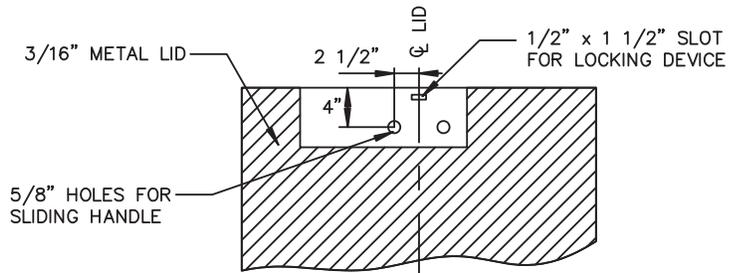
CITY
OF
TWIN FALLS

INLET CATCH BASIN
TYPE II

STANDARD DRAWING
NO. TFSD-602

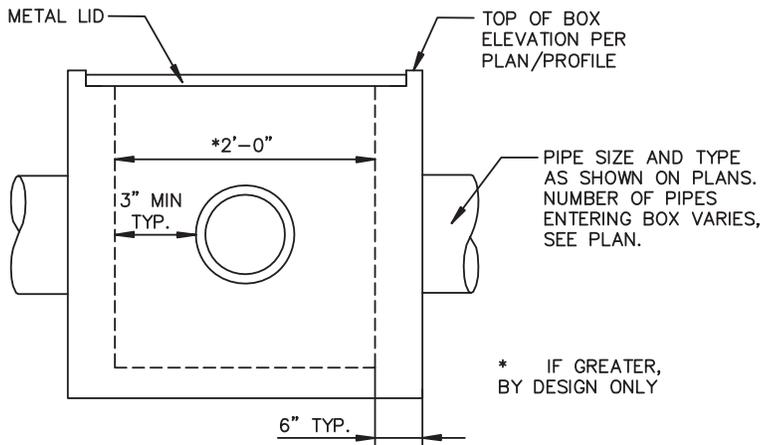


PLAN
N.T.S

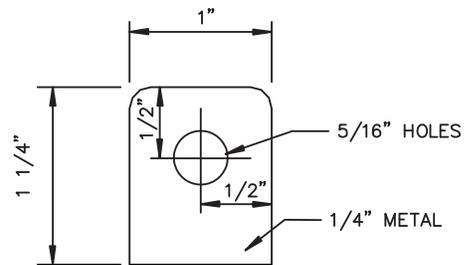


ALL EXPOSED METAL PARTS SHALL HAVE NON-LEAD RUST INHIBITIVE RED OXIDE PAINT APPLIED TO THEM. OUTSIDE DIMENSIONS OF THE LID TO BE (3/8") THREE-EIGHTHS INCHES LESS THAN INSIDE DIMENSIONS OF ANGLE IRON FRAME.

METAL LID
N.T.S



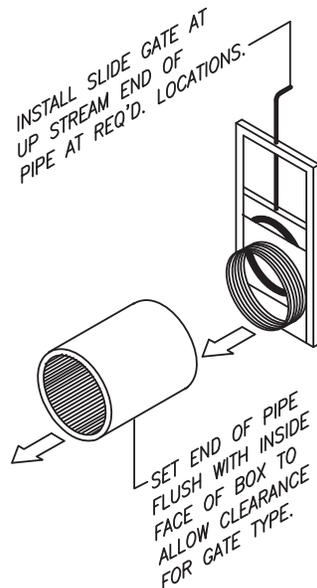
PROFILE
N.T.S

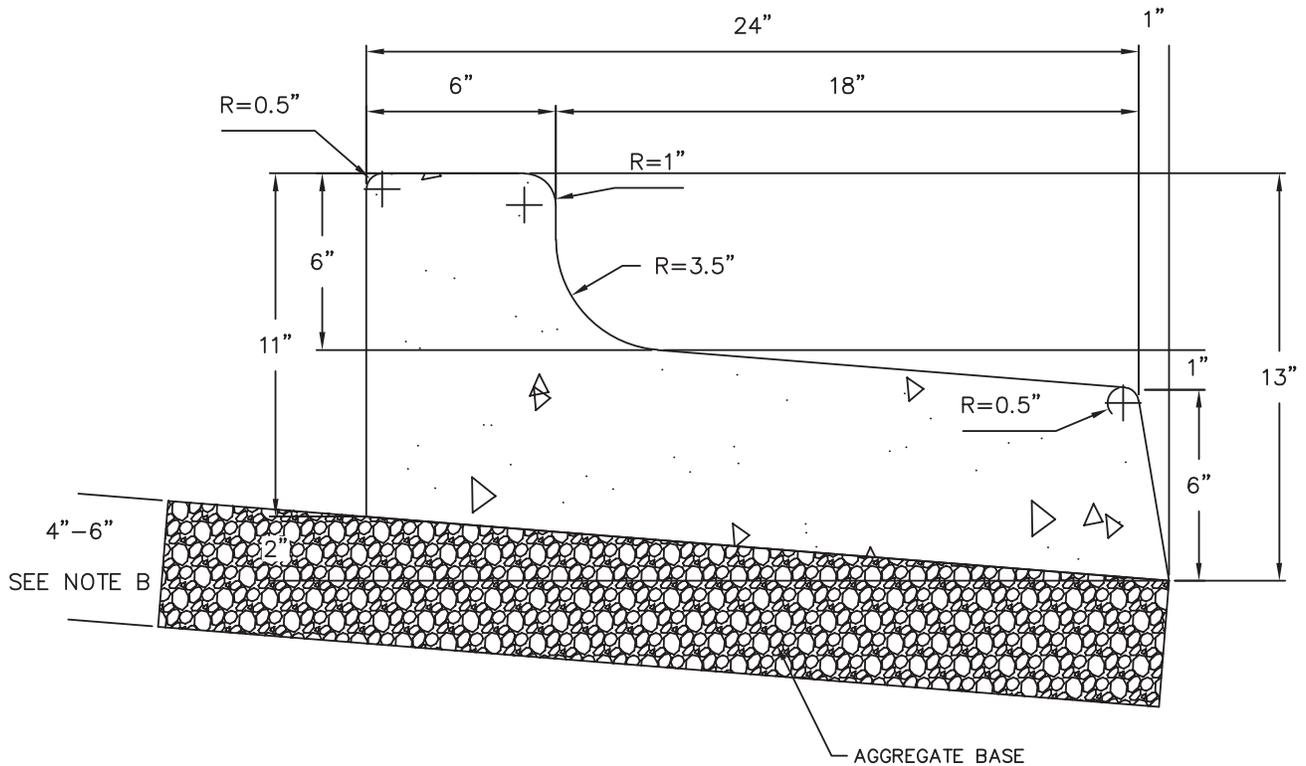


LOCKING DEVICE TO BE CENTERED ON INSIDE EDGE OF ANGLE IRON FRAME AND WELDED. SEE PLAN.

LOCKING DEVICE
N.T.S

- NOTE:
- (A) PLACE SUFFICIENT REINFORCING STEEL TO ALLOW FOR SITE SPECIFIC LOADING CONDITIONS AND ACCOMMODATE PIPE PENETRATIONS.
 - (B) TYPICAL MANUFACTURER'S SIZING REFERS TO STRUCTURE INTERIOR DIMENSIONS.
 - (C) 1' MIN. FROM BOTTOM PIPE TO INSIDE BOTTOM OF BOX.
 - (D) NOT TO BE USED IN ROADWAY OR SIDEWALK.





NOTES:

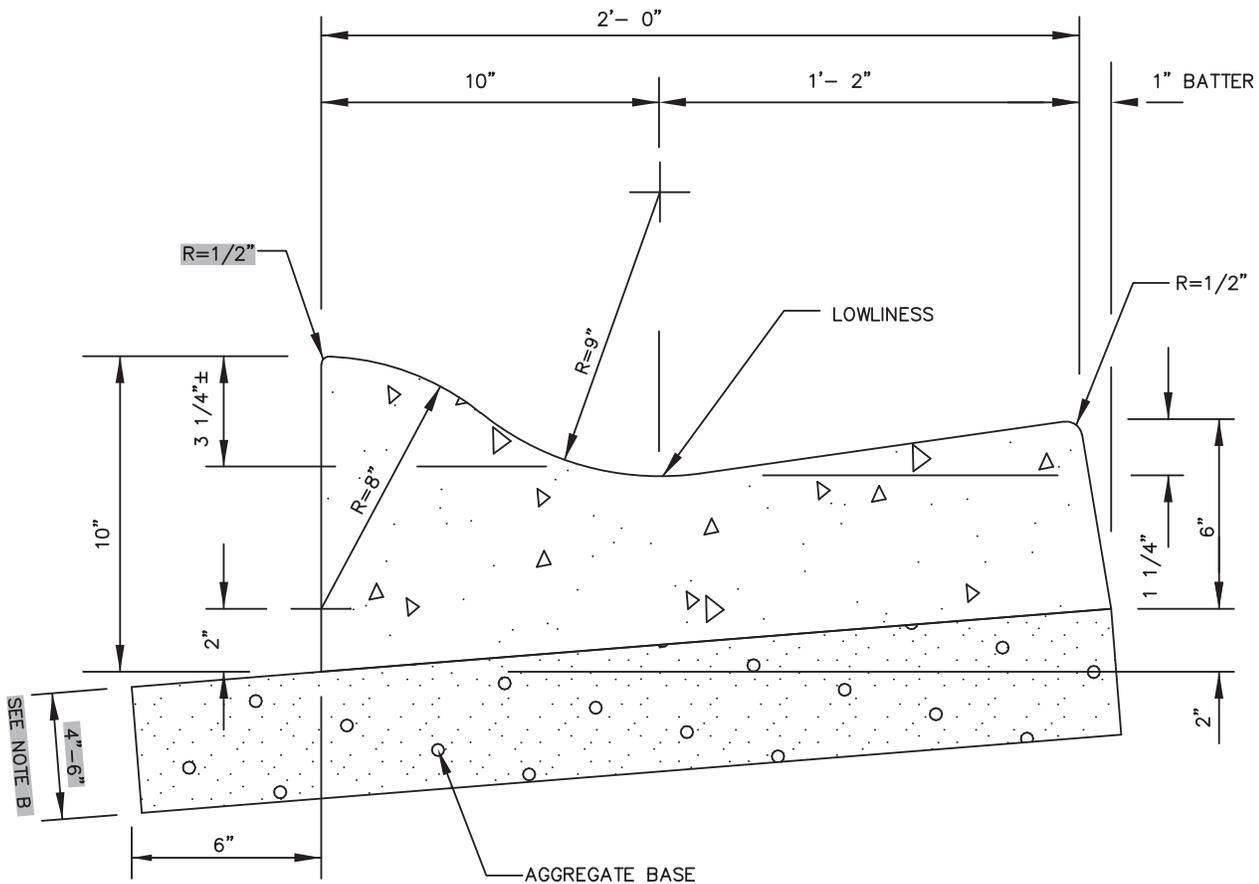
- (A) GRADE OF CURB AND GUTTER MINIMUM 0.40%, UNLESS APPROVED BY CITY ENGINEER.
- (B) BASE: ARTERIALS AND COLLECTORS: 6-INCH, OTHERWISE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPWC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) 1/2-INCH PREFORMED EXPANSION JOINT MATERIAL (AASHTO M 213) AT TERMINAL POINTS OF RADII.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE LOCATIONS TO MATCH ADJACENT SIDEWALK WITH 10- FEET MAXIMUM SPACING. SCORES TO BE PER CITY OF TWIN FALLS REVISIONS - SECTION 706.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPWC SPECIFICATIONS.
- (F) BACKFILL AS PER SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) STAMP 4" LETTER "S", "W", OR "I" INTO CONCRETE WHERE SEWER, WATER, OR IRRIGATION SERVICE CROSSES RESPECTIVELY.

2020

CITY
OF
TWIN FALLS

6" VERTICAL CURB
AND SPILL GUTTER

STANDARD DRAWING
NO. TFSD-701A



NOTES:

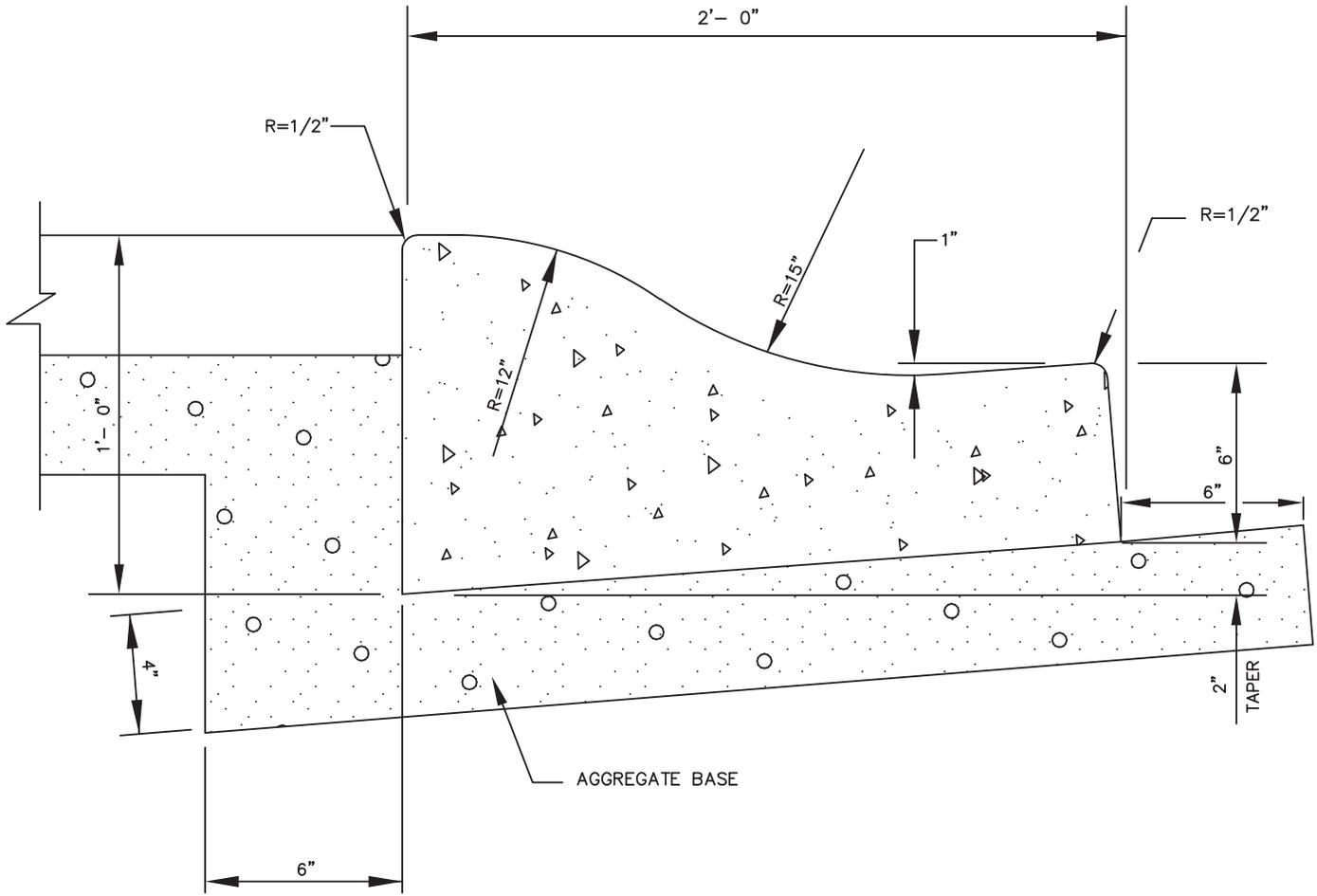
- (A) GRADE OF GUTTER MINIMUM 0.40%, UNLESS APPROVED BY THE CITY ENGINEER.
- (B) BASE: ARTERIALS AND COLLECTORS: 6-INCH, OTHERWISE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACED AS SPECIFIED AND PAID UNDER SECTION-802 ISPCW; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) 1/2-INCH PREFORMED EXPANSION JOINT MATERIAL (AASHTO M 213) AT TERMINAL POINTS OF RADII.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE LOCATIONS TO MATCH SIDEWALK WITH 10 FEET MAXIMUM SPACING. SCORES TO BE PER CITY OF TWIN FALLS REVISIONS - SECTION 706.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPCW SPECIFICATIONS.
- (F) BACKFILL AS PER ISPCW SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) USE ROLLED CURB IN RESIDENTIAL AREAS. WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS VERTICAL CURB LENGTH TO BE FULL RADIUS PLUS 5 FEET AT EACH END. TRANSITION LENGTH FROM ROLLED CURB TO VERTICAL CURB 5 FEET.
- (I) NO SECTION OF CURB SHALL BE LESS THAN 5 FEET IN LENGTH.
- (J) STAMP 4" LETTER "S", "W", OR "I" INTO CONCRETE WHERE SEWER, WATER, OR IRRIGATION SERVICE CROSSES RESPECTIVELY.

2020

CITY
OF
TWIN FALLS

3" ROLLED
CURB AND GUTTER

STANDARD DRAWING
NO. TFSD-702



NOTES:

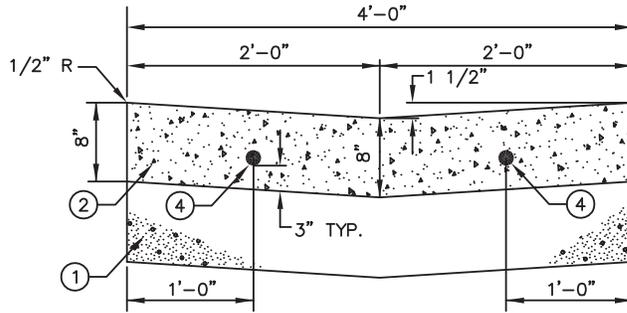
- (A) GRADE OF GUTTER MINIMUM 0.40% UNLESS APPROVED BY THE CITY ENGINEER.
- (B) BASE: ARTERIALS AND COLLECTORS: 6-INCH, OTHERWISE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACED AS SPECIFIED AND PAID UNDER SECTION-802 ISPWC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR; A MINIMUM WIDTH OF 3- FEET TO GRADE, PRIOR TO SETTING CURB FORMS.
- (C) 1/2-INCH PREFORMED EXPANSION JOINT MATERIAL (AASHTO M 213) AT TERMINAL POINTS OF RADII.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE LOCATIONS TO MATCH SIDEWALK WITH 10 FEET MAXIMUM SPACING. SCORES TO BE PER CITY OF TWIN FALLS REVISIONS - SECTION 706.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPWC SPECIFICATIONS.
- (F) BACKFILL AS PER ISPWC SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTION, VERTICAL CURB LENGTH TO BE FULL CURVE CIRCUMFERENCE PLUS 5 FEET TANGENT AT EACH END. TRANSITION LENGTH FROM TYPE II CURB TO VERTICAL CURB 5 FEET.
- (I) NO SECTION OF CURB SHALL BE LESS THAN 5 FEET IN LENGTH.
- (J) STAMP 4" LETTER "S", "W", OR "I" INTO CONCRETE WHERE SEWER, WATER, OR IRRIGATION SERVICE CROSSES RESPECTIVELY.

2020

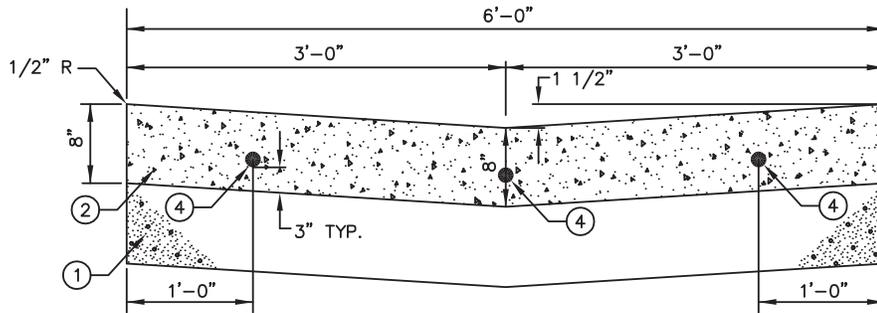
CITY
OF
TWIN FALLS

CURB AND GUTTER
TYPE II

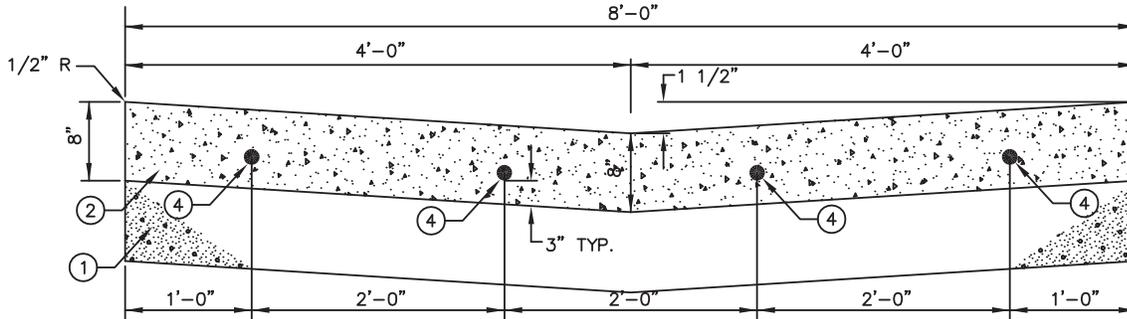
STANDARD DRAWING
NO. **TF**SD-704



TYPICAL SECTION (4')



TYPICAL SECTION (6')



TYPICAL SECTION (8')

LEGEND:

- ① 6" OF 3/4" MINUS CRUSHED AGGREGATE BASE MINIMUM.
- ② CONCRETE
- ③ NOT USED
- ④ #4 REBAR

NOTES:

- Ⓐ SEE TFSD-708A FOR ADDITIONAL NOTES.

WIDTH TABLE

TYPE OF STREET	MINIMUM WIDTH
ARTERIALS	8'
COLLECTORS	6'

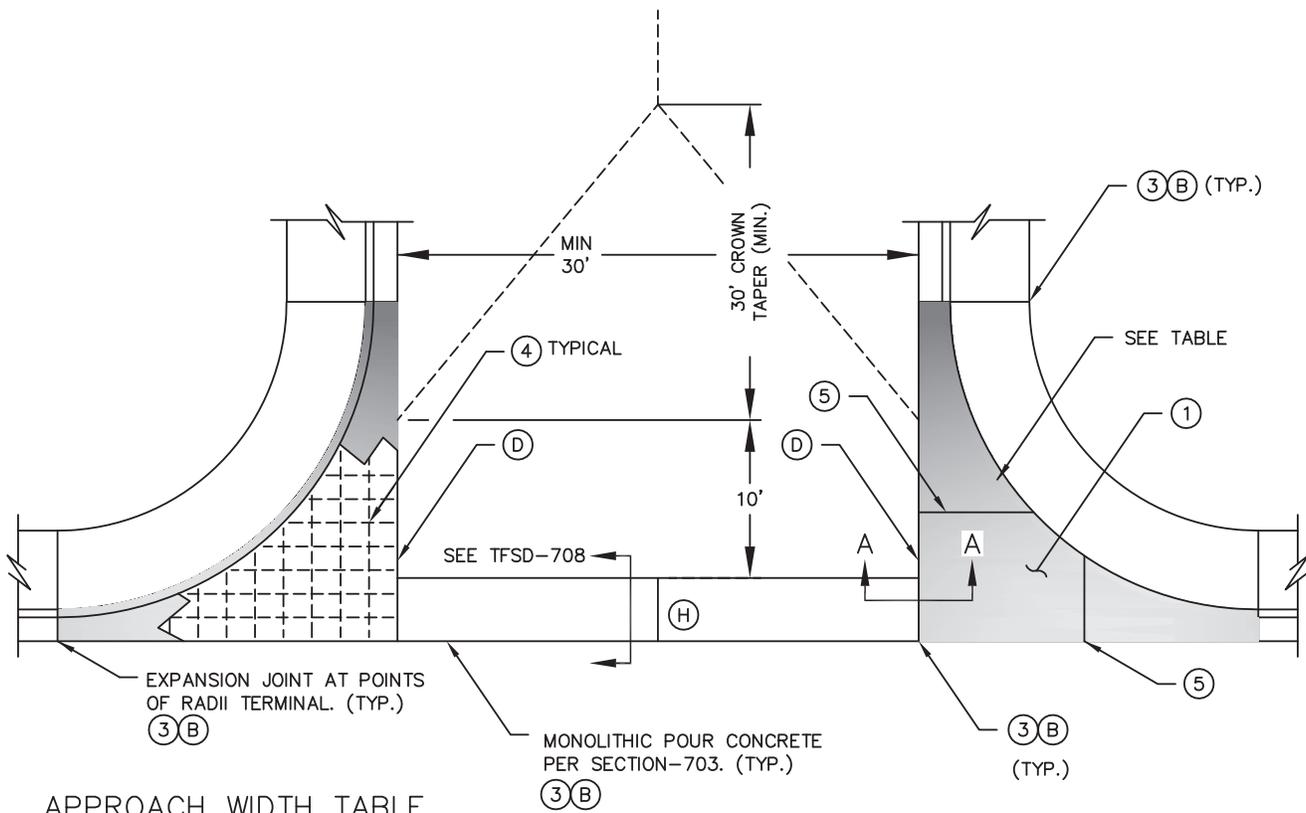
VALLEY GUTTER WIDTH DETERMINED BY STREET TYPE EITHER CROSSING OR ADJACENT TO NEW VALLEY GUTTER. IN CASE WITH MULTIPLE STREET TYPES, USE WIDER WIDTH UNLESS APPROVED BY CITY ENGINEER.

2020

CITY OF TWIN FALLS

VALLEY GUTTER TYPICAL SECTIONS

STANDARD DRAWING NO. TFSD-708



APPROACH WIDTH TABLE

COMMERCIAL	30-40 FEET.
TRUCK (WITH CITY ENGINEER'S APPROVAL)	40-65 FEET.

PLAN VIEW
N.T.S.

FOC RADIUS	STREET TYPE
*20'	LOCAL
*30'	COLLECTOR/ARTERIAL
40'	WITH CITY ENGINEER'S APPROVAL

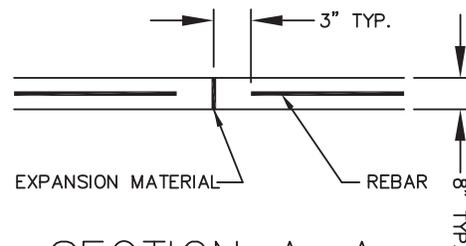
*WHEN TWO DIFFERENT STREET TYPES INTERSECT, USE THE LARGER RADIUS.

LEGEND:

- (1) 6" OF 3/4" MINUS CRUSHED AGGREGATE BASE MINIMUM UNDER CURB TURN FILLET. BASE TO BE MINIMUM 6" FOR COMMERCIAL AND TRUCK APPROACHES.
- (2) CONCRETE PER ISPMC SECTION 703.
- (3) 1/2" EXPANSION JOINT.
- (4) #4 REBAR AT 18" ON CENTER EACH WAY.
- (5) TOOLED JOINT.

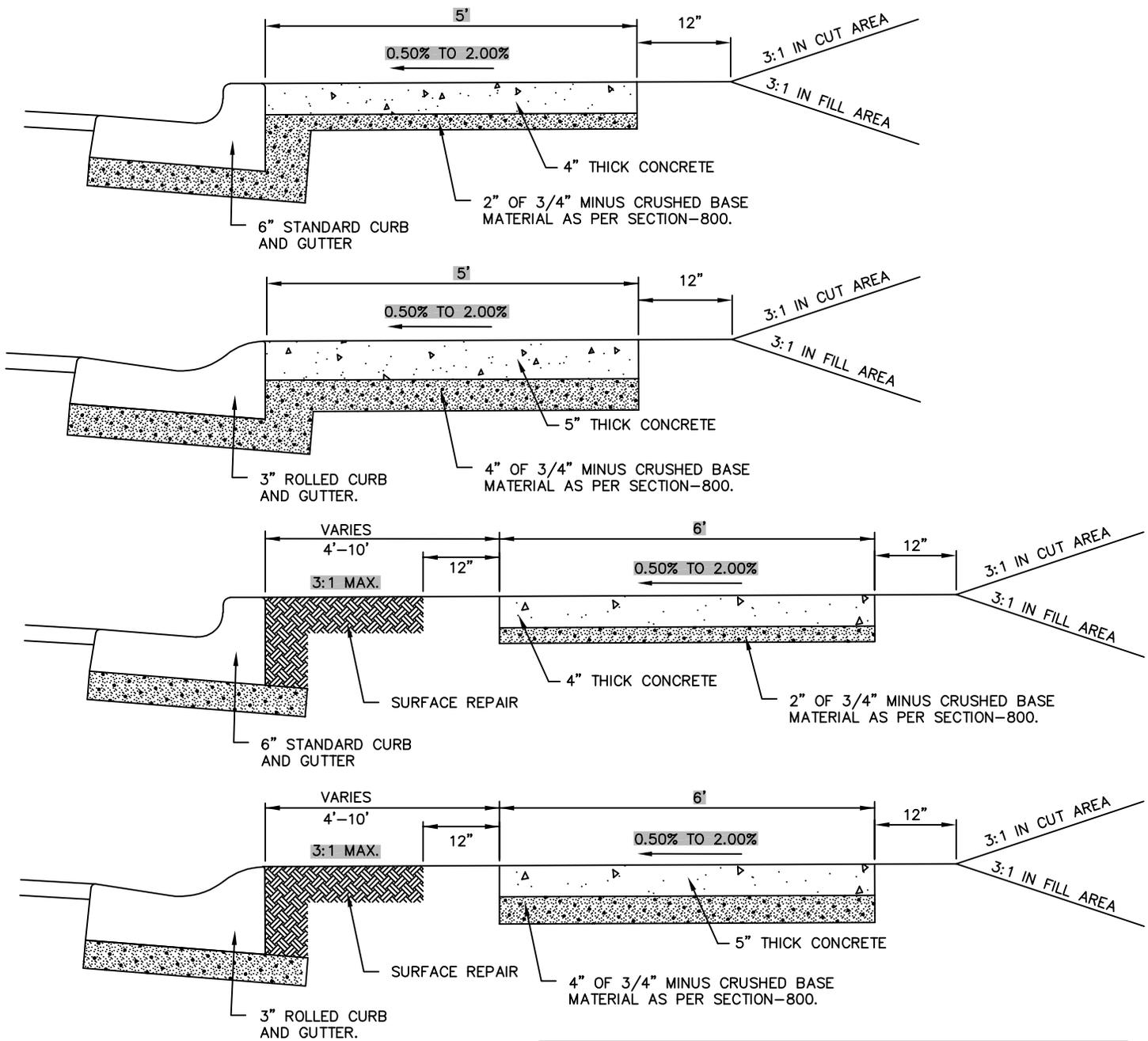
NOTES:

- (A) GRADE OF GUTTER MINIMUM 0.40%, UNLESS APPROVED BY CITY ENGINEER
- (B) EXPANSION JOINT 1/2-INCH PREFORMED JOINT MATERIAL (AASHTO M 213).
- (C) FILLET AND BASE SECTION THICKNESS SHALL MATCH THE VALLEY GUTTER, TYPICAL.
- (D) SHADED AREAS ARE PAY LIMITS FOR CURB TURN FILLET.
- (E) CRACKS OR BROKEN SECTIONS PER CITY OF TWIN FALLS REVISIONS-SECTION 703
- (F) ALL REBAR OVERLAP SHALL BE 15" MINIMUM.
- (G) WHEN SECTIONS OF VALLEY GUTTER ARE REMOVED OR REPLACED THE NEW SECTION SHALL BE DOWELED INTO THE EXISTING CONCRETE 15" INCHES. THE NEW VALLEY GUTTER SECTION SHALL BE NO LESS THAN 6' LONG.
- (H) TOOLED CONTRACTION JOINTS SHALL BE PLACED IN THE VALLEY GUTTER AT 20' FEET INTERVALS OR IF LESS THAN 40' FEET LONG, PLACE ONE IN THE MIDDLE.
- (I) ADA RAMP NOT SHOWN, SEE STANDARD DRAWING TFSD-712 SERIES. CURB TURN FILLET TO MEET ADA REQUIREMENTS.
- (J) CENTER ISLANDS ONLY ALLOWED WITH CITY ENGINEER APPROVAL.



SECTION A-A

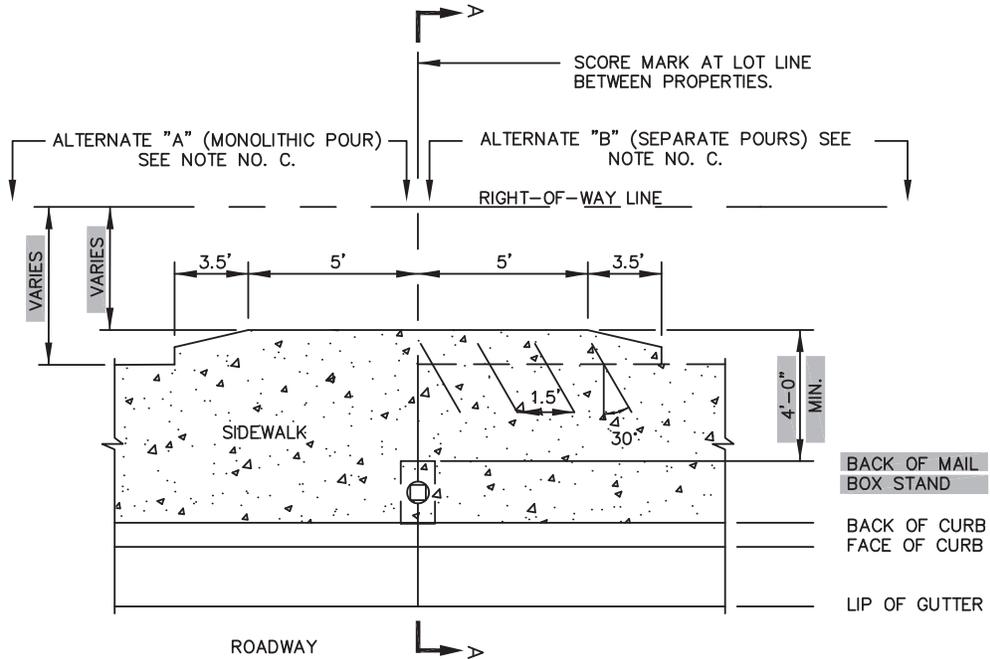
2020



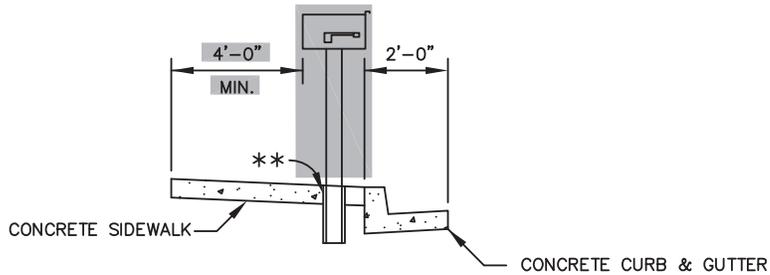
NOTES:

- (A) LOCATION, GRADE, AND WIDTH TO BE ESTABLISHED OR APPROVED BY THE OWNER.
- (B) BASE TO BE COMPACTED TO EXCEED 95% OF STANDARD DENSITY.
- (C) SLOPE SIDEWALK TOWARD THE STREET NO LESS THAN 0.50% AND NOT TO EXCEED 2.00%.
- (D) JOINTS TO BE IN ACCORDANCE WITH THE JOINT TABLE.
- (E) EXPANSION JOINTS SHALL BE 1/2" TRANSVERSE PREFORMED BITUMINOUS MATERIAL. CONTROL AND CONTRACTION JOINTS TO BE PER CITY OF TWIN FALLS REVISIONS - SECTION 706.
- (F) DRIVEWAY APPROACH ACROSS PLANTER STRIP TO BE 5" MINIMUM CONCRETE OVER 4" OF 3/4" MINUS CRUSHED BASE.
- (G) SIDEWALK WIDTH TO BE 5' MINIMUM UNLESS APPROVED BY THE CITY ENGINEER.
- (H) ON SIDEWALKS IN COMMERCIAL AREAS WHERE THE WALK EXTENDS FROM THE BUILDING TO THE CURBING, OR EXCEEDS THE STANDARD FIVE (5) FEET WIDTH, THE WALK SHALL BE LAID OUT IN BLOCKS NOT TO EXCEED TEN (10) FEET BY TEN (10) FEET SQUARES.
- (I) EXPANSION MATERIAL SHALL BE USED TO SEPARATE NEW SIDEWALK FROM EXISTING SIDEWALK. A 5 FOOT TRANSITION PANEL SHALL BE CONSTRUCTED TO SEPARATE EXISTING SIDEWALK THAT IS NOT ADA COMPLIANT WITH NEW ADA COMPLIANT SIDEWALK UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

JOINTS		
CURB & GUTTER (TRANSVERSE)	*10'	**100'
SIDEWALK (TRANSVERSE)	*5'	**100'
SIDEWALK (LONGITUDINAL)	**CONTINUOUSLY BETWEEN PERMANENT FOUNDATIONS	
APPROACHES	*PER STANDARD DRAWINGS	**BOTH SIDES
ADA RAMPS	*PER STANDARD DRAWINGS	**BOTH SIDES
ALL CORNER RADII (C&G, SIDEWALK, AND ADA RAMPS)	*PER STANDARD DRAWINGS	**BOTH SIDES
*CONTROL/CONTRACTION		
**EXPANSION		



PLAN
N.T.S

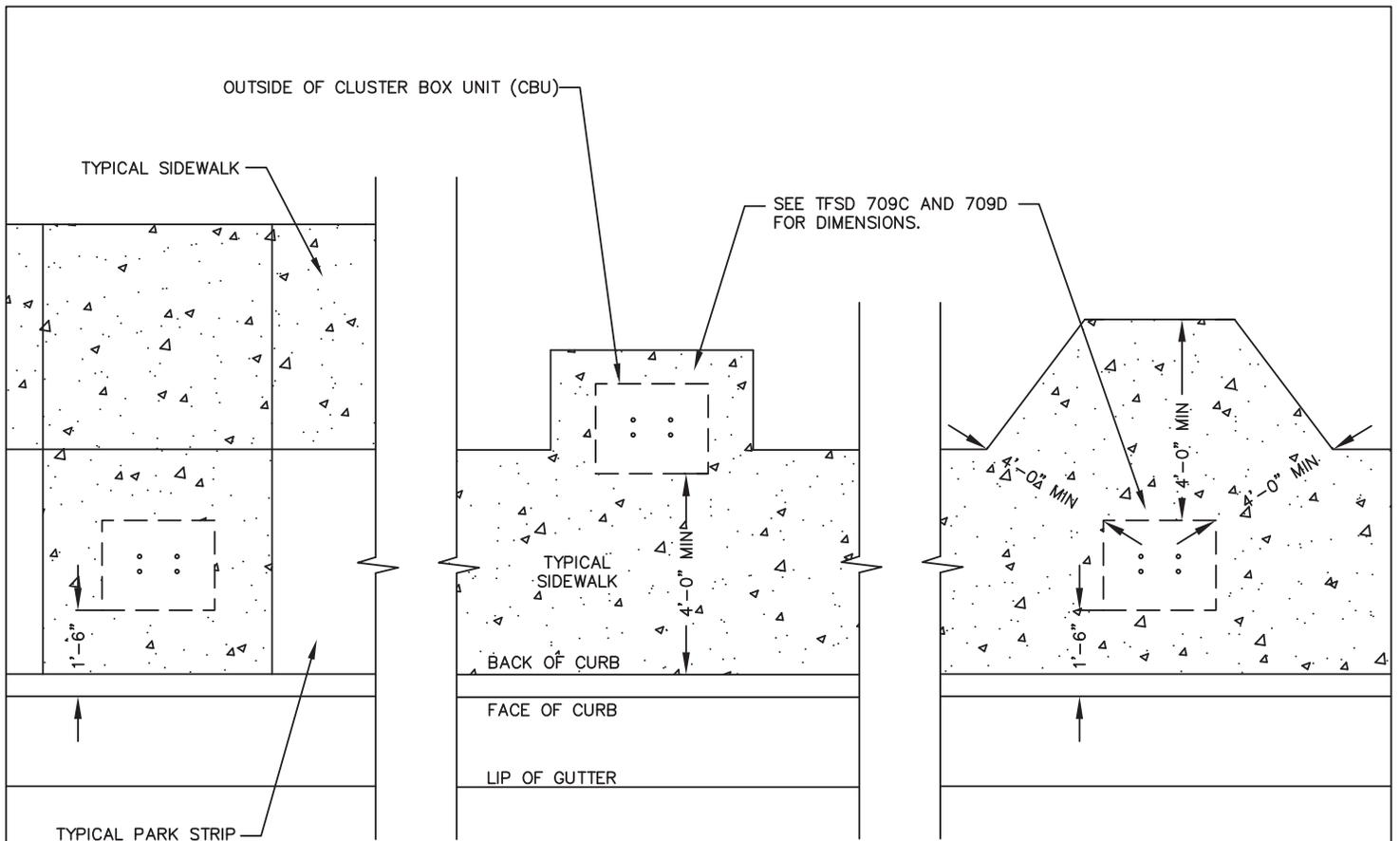


SECTION A-A
N.T.S

** 16" DEEP x 6" DIAMETER PVC PIPE TO BE USED AND BACKFILLED OR COVERED FOR USE AT A LATER TIME.

NOTES:

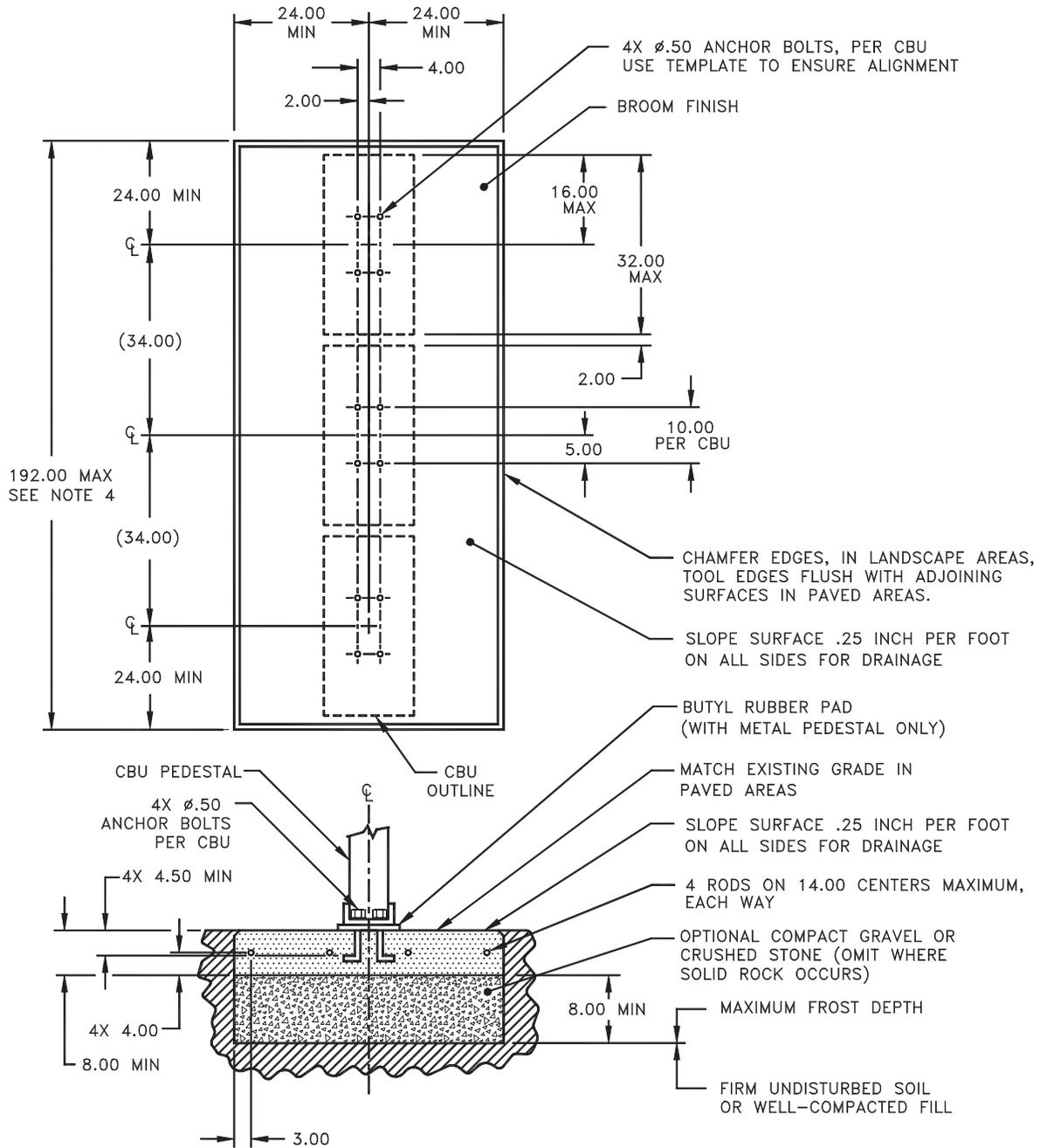
- (A) LOCATIONS SHOWN ON CONSTRUCTION PLANS.
- (B) SEE STANDARD SPECIFICATIONS SECTION 700 FOR DETAILS NOT SHOWN.
- (C) ALL SIDEWALK CONSTRUCTION OF MAILBOX LOCATIONS SHALL BE EITHER BY ALTERNATE "A" OR ALTERNATE "B" CONSTRUCTION. ALTERNATE "B" SHALL INCLUDE PLACEMENT OF 2' x 1/2" (NO. 4) STEEL REINFORCING BARS PLACED 1.5' O.C. DIRECTED TOWARD THE LOT LINE BETWEEN PROPERTIES ON BOTH SIDES OF LOT LINE AT BACK OF WALK AREA (SEE PLAN VIEW).
- (D) MAIL BOXES SHALL HAVE SUCCESSFULLY PASSED THE TESTING REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) OR THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) 350. INSTALL MAIL BOXES IN ACCORDANCE WITH MANUFACTURERS' INSTALLATION INSTRUCTIONS.



PLAN VIEW
N.T.S

NOTES:

- (A) CONTRACTOR TO PROVIDE AND INSTALL CBUS
- (B) LOCATION OF CBU TO BE APPROVED BY CITY ENGINEER AND USPS POSTMASTER.
- (C) ALL CBUS SHALL BE PLACED AT A MINIMUM DISTANCE OF 1.5 FEET FROM THE FACE OF CURB TO MAINTAIN CLEARZONE REQUIREMENTS.
- (D) MAINTAIN 4' CLEARANCE AROUND CLUSTER BOX UNIT.
- (E) USE 8 DOOR OR 16 DOOR CLUSTER BOX UNITS.



NOTES:

1. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS, CONTAIN 4% MIN - 6% MAX AIR ENTRAINMENT AND BE PLACED WITH A 3.50 - 4.50 SLUMP IN ACCORDANCE WITH ACI 301.
2. REINFORCING STEEL RODS SHALL CONFORM TO ASTM A615, GRADE 60.
3. ANCHOR BOLTS SHALL CONFORM TO ASTM A193, GRADE B8M, TYPE 316 STAINLESS STEEL.
4. A 3 CBU CONFIGURATION IS DEPICTED. A 2 OR 4 CBU CONFIGURATION MAY BE USED AS LONG AS THEY ARE ARRANGED IN GROUPS SUCH THAT THE OVERALL DIMENSION OF THE CONCRETE BASE DOES NOT EXCEED 192 INCHES.

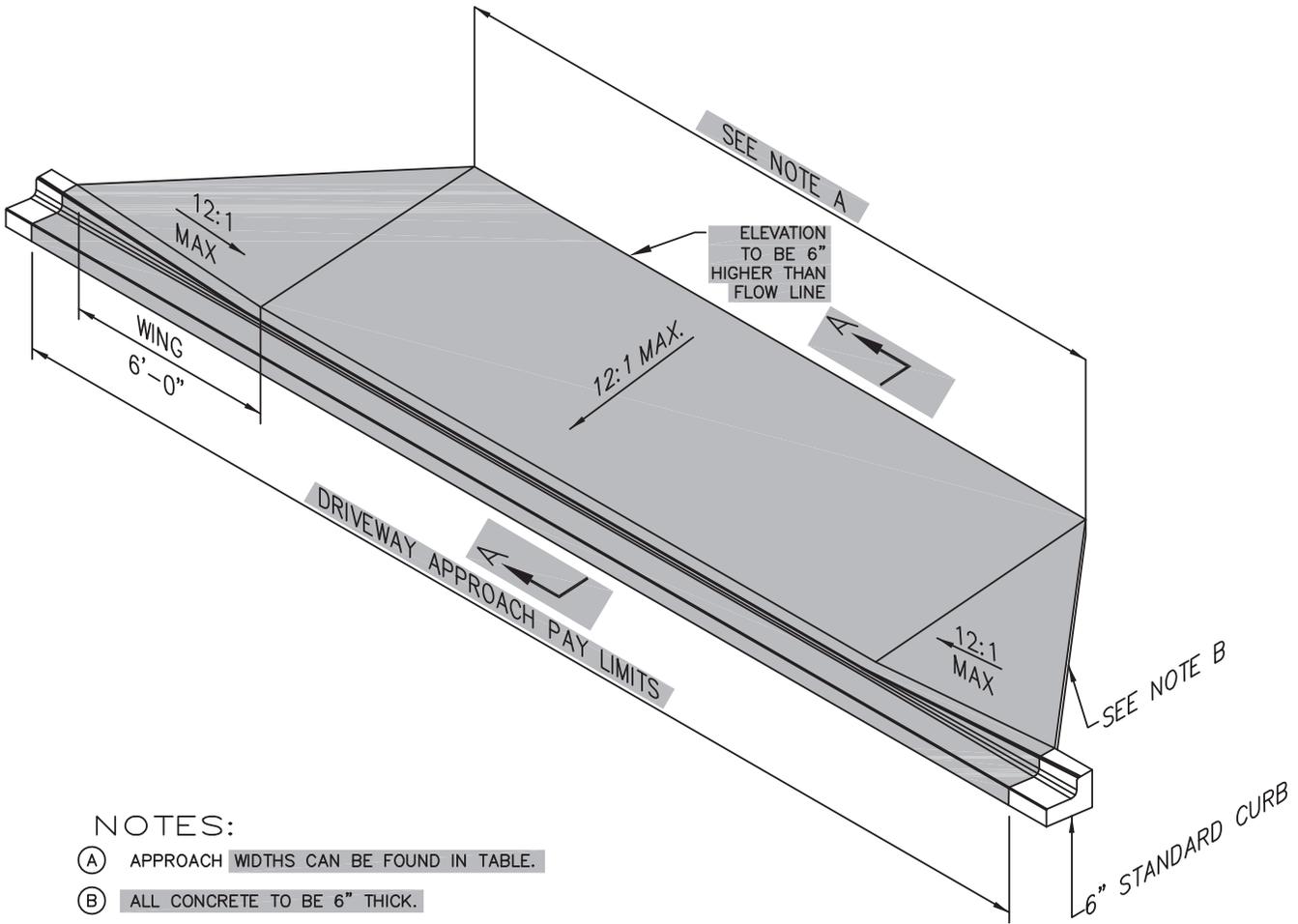
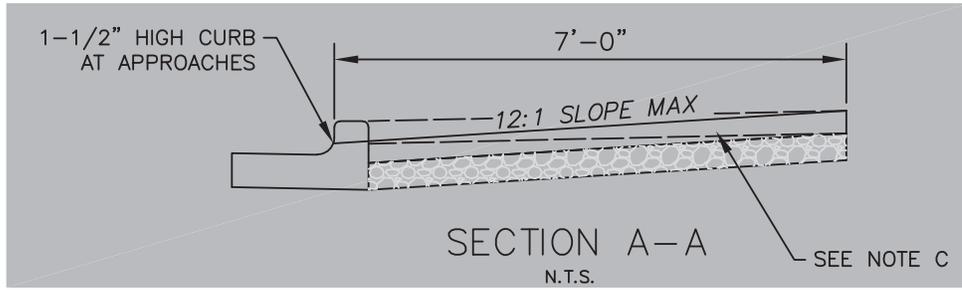
ALL DIMENSIONS ARE IN INCHES

2020

CITY
OF
TWIN FALLS

USPS MULTI-CLUSTER
BOX UNIT DETAIL

STANDARD DRAWING
NO. TFSD-709D

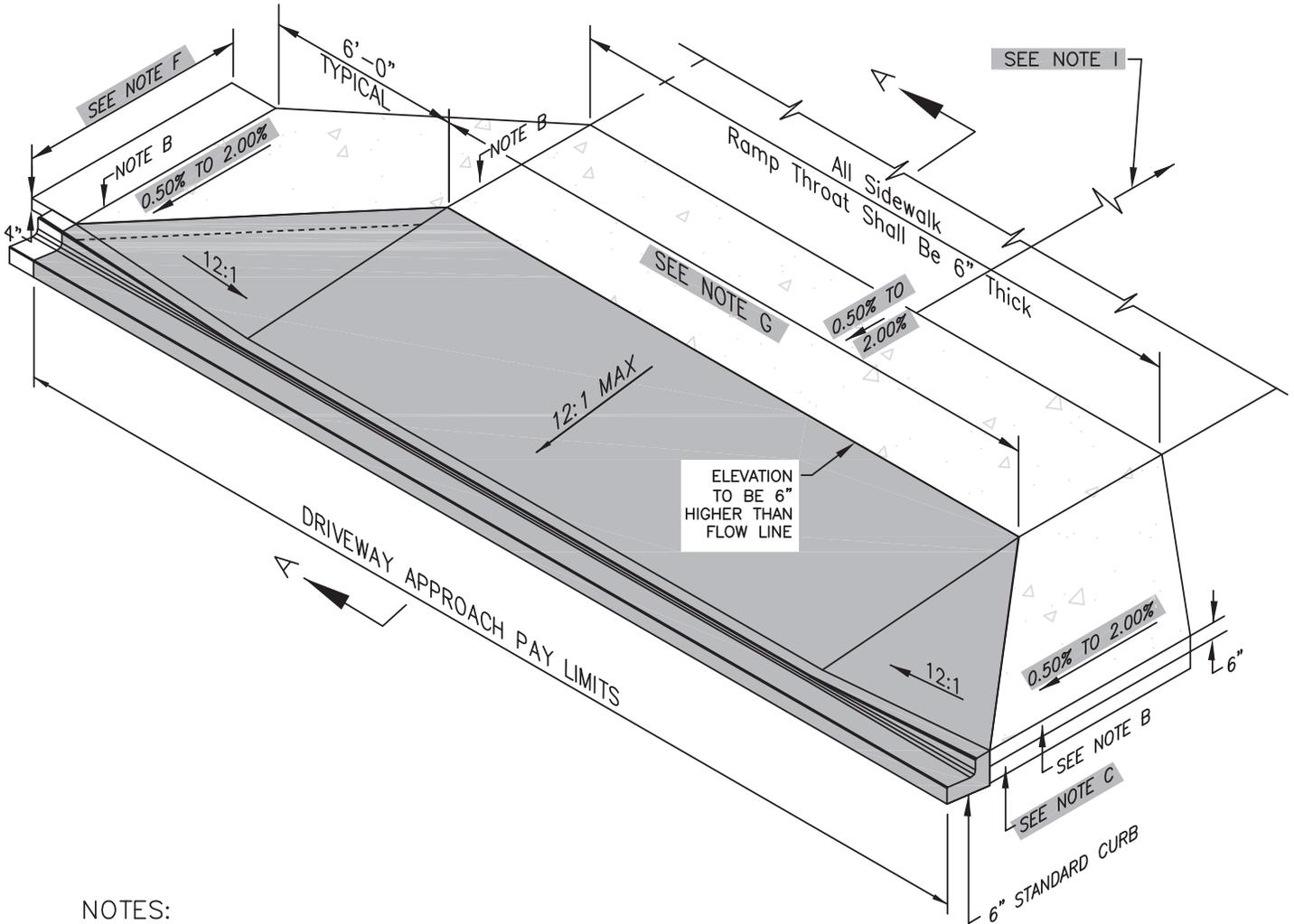
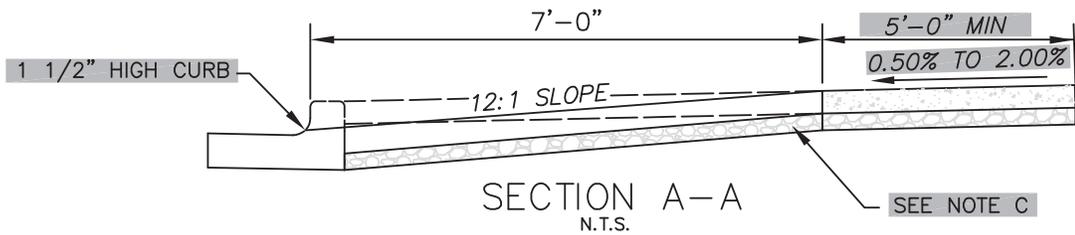


NOTES:

- (A) APPROACH WIDTHS CAN BE FOUND IN TABLE.
- (B) ALL CONCRETE TO BE 6" THICK.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION-802. BASE TO BE 6" FOR COMMERCIAL AND TRUCK APPROACHES.
- (D) NOT USED.
- (E) ALL CONCRETE SHALL BE CLASS 4000 PER SECTION-703.
- (F) THE SHADED AREAS ARE PAY LIMITS FOR CONCRETE DRIVEWAY APPROACH.
- (G) DRIVEWAY APPROACHES BETWEEN 20' AND 30' WIDE SHALL HAVE 1 CONTRACTION JOINT CENTERED. DRIVEWAY APPROACHES OVER 30' WIDE SHALL HAVE CONTRACTION JOINTS EVENLY SPACED (MAXIMUM SPACING 15').

Local	12-36 feet
Joint Use	20-40 feet
Commercial	30-40 feet
Truck	40-65 feet

2020

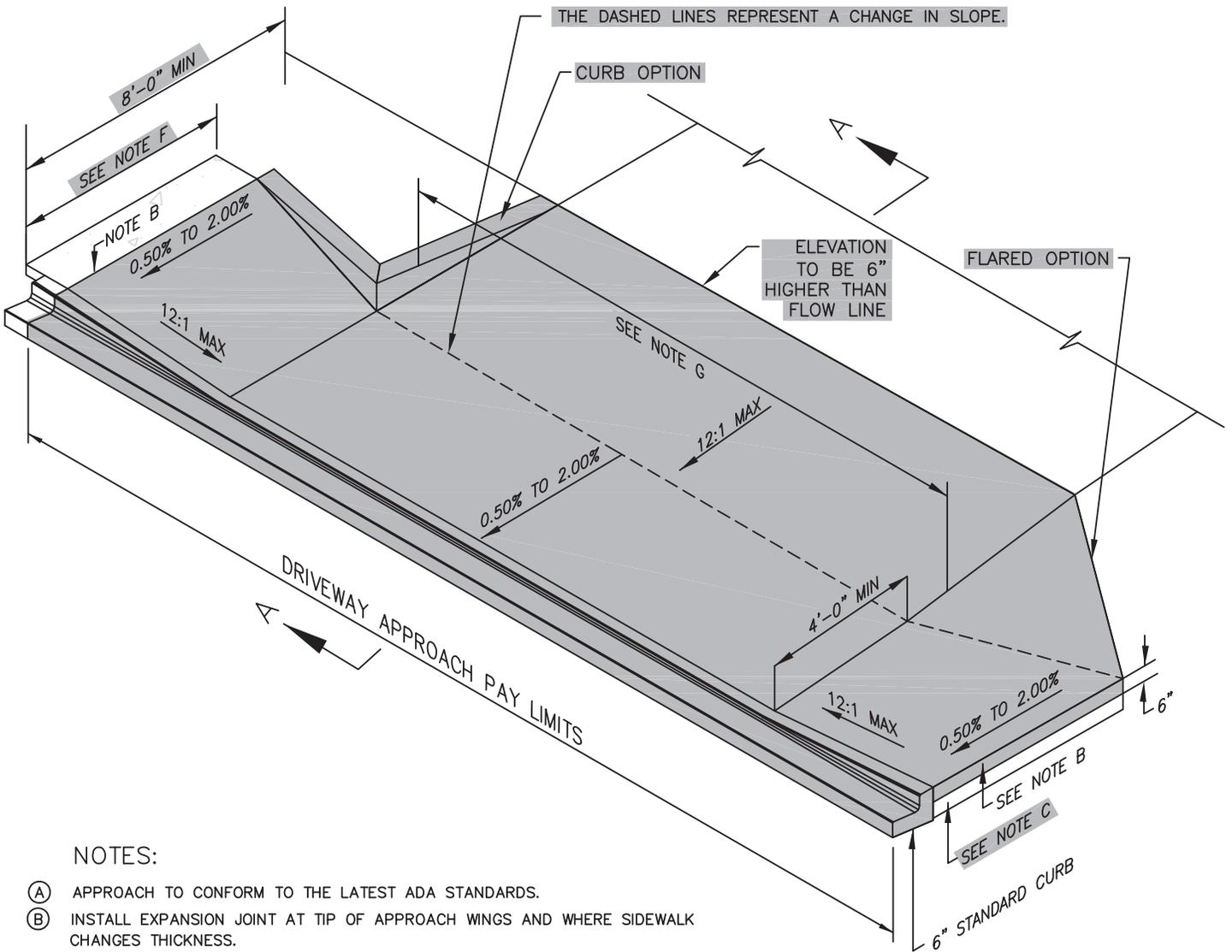
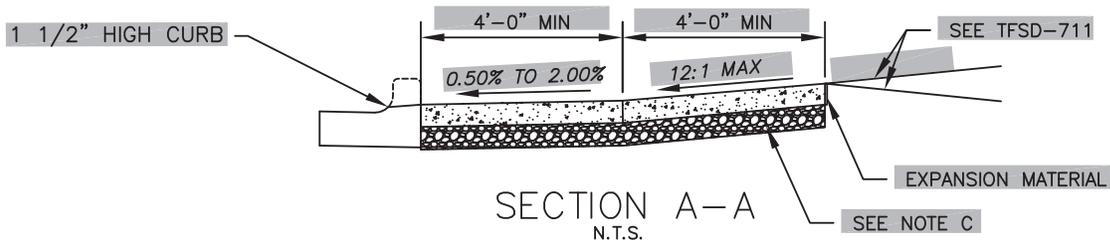


NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST ADA STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) APPROACH THROAT WIDTHS SET BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 4000 PER SECTION - 703.
- (F) SIDEWALK WIDTH TO BE 5' MINIMUM UNLESS APPROVED BY THE CITY ENGINEER.
- (G) APPROACH WIDTHS CAN BE FOUND ON TABLE.
- (H) THE SHADED AREAS ARE PAY LIMITS FOR CONCRETE DRIVEWAY APPROACH.
- (I) 20' MIN FROM BACK OF SIDEWALK TO ANY STRUCTURE.
- (J) THIS STANDARD DRAWING TO BE USED ONLY UPON APPROVAL OF CITY ENGINEER.
- (K) DRIVEWAY APPROACHES BETWEEN 20' AND 30' WIDE SHALL HAVE 1 CONTRACTION JOINT CENTERED. DRIVEWAY APPROACHES OVER 30' WIDE SHALL HAVE CONTRACTION JOINTS EVENLY SPACED (MAXIMUM SPACING 15').

APPROACH WIDTH TABLE

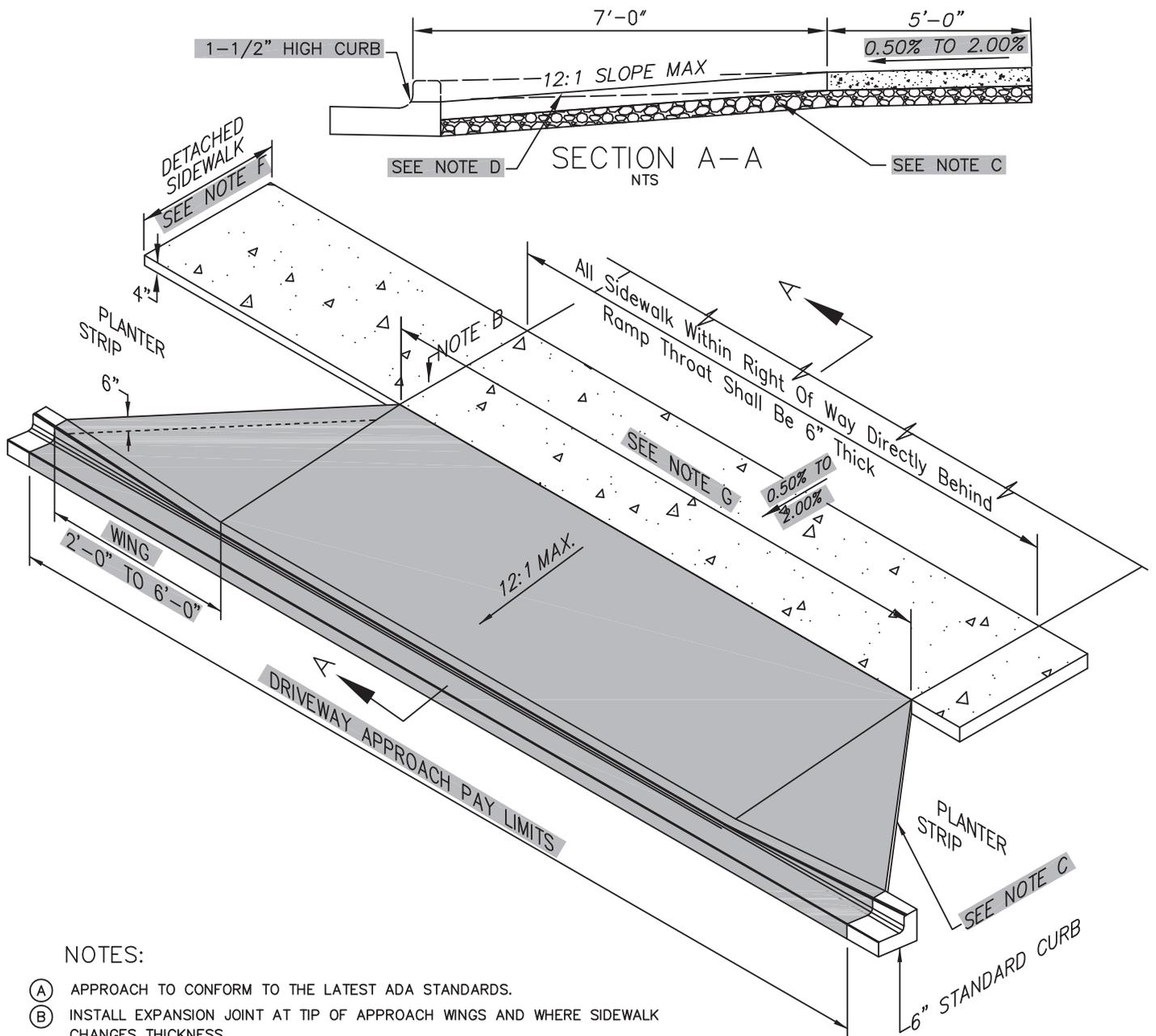
Residential	12-36 feet
Joint Use	20-40 feet



NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST ADA STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 4000 PER SECTION - 703.
- (F) SIDEWALK WIDTH TO BE 5' MINIMUM UNLESS APPROVED BY THE CITY ENGINEER.
- (G) APPROACH WIDTHS CAN BE FOUND ON TABLE.
- (H) THE SHADED AREAS ARE PAY LIMITS FOR CONCRETE DRIVEWAY APPROACH.
- (I) DRIVEWAY APPROACHES BETWEEN 20' AND 30' WIDE SHALL HAVE 1 CONTRACTION JOINT CENTERED. DRIVEWAY APPROACHES OVER 30' WIDE SHALL HAVE CONTRACTION JOINTS EVENLY SPACED (MAXIMUM SPACING 15').

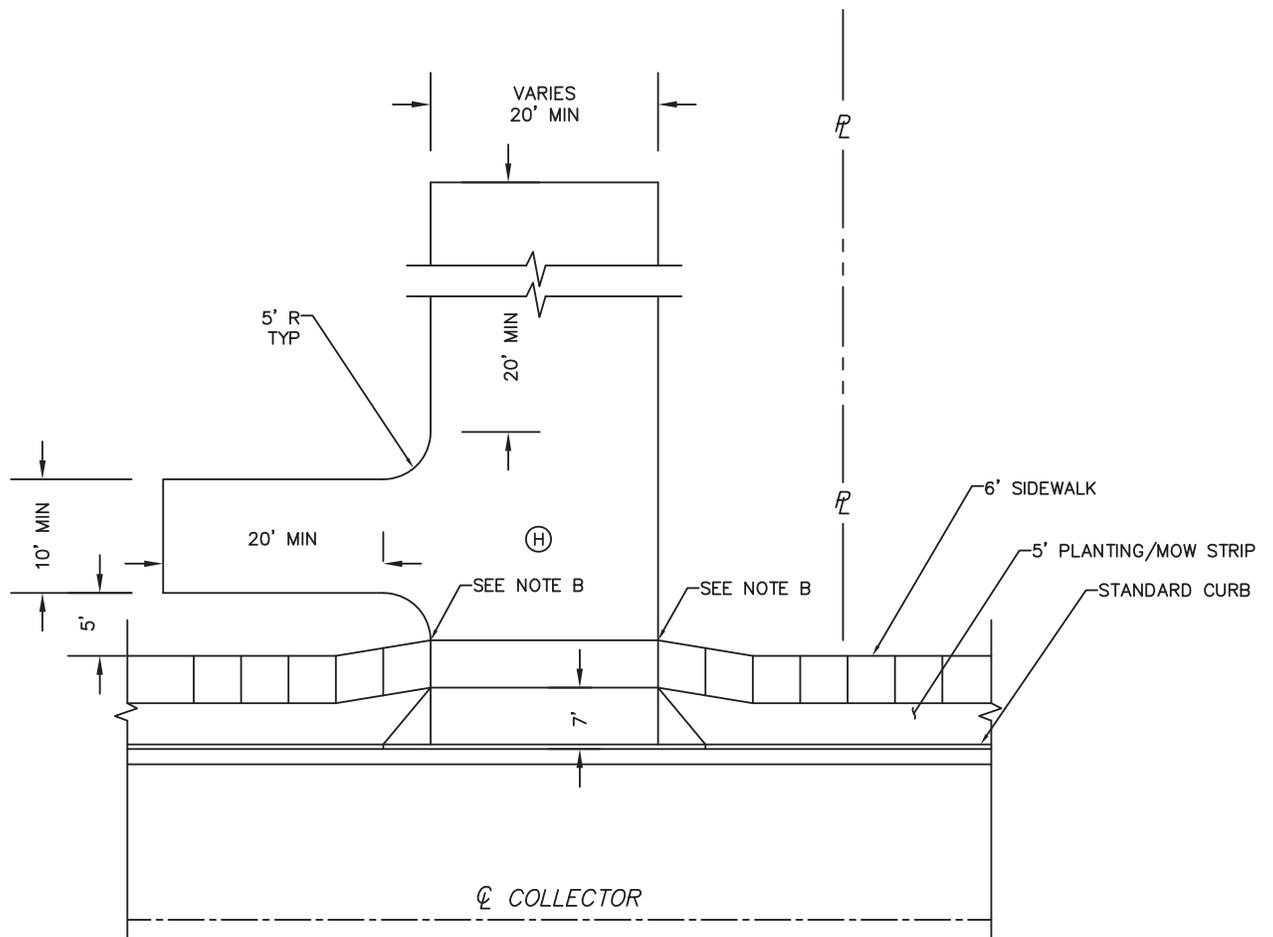
Residential	12-36 feet
Joint Use	20-40 feet



NOTES:

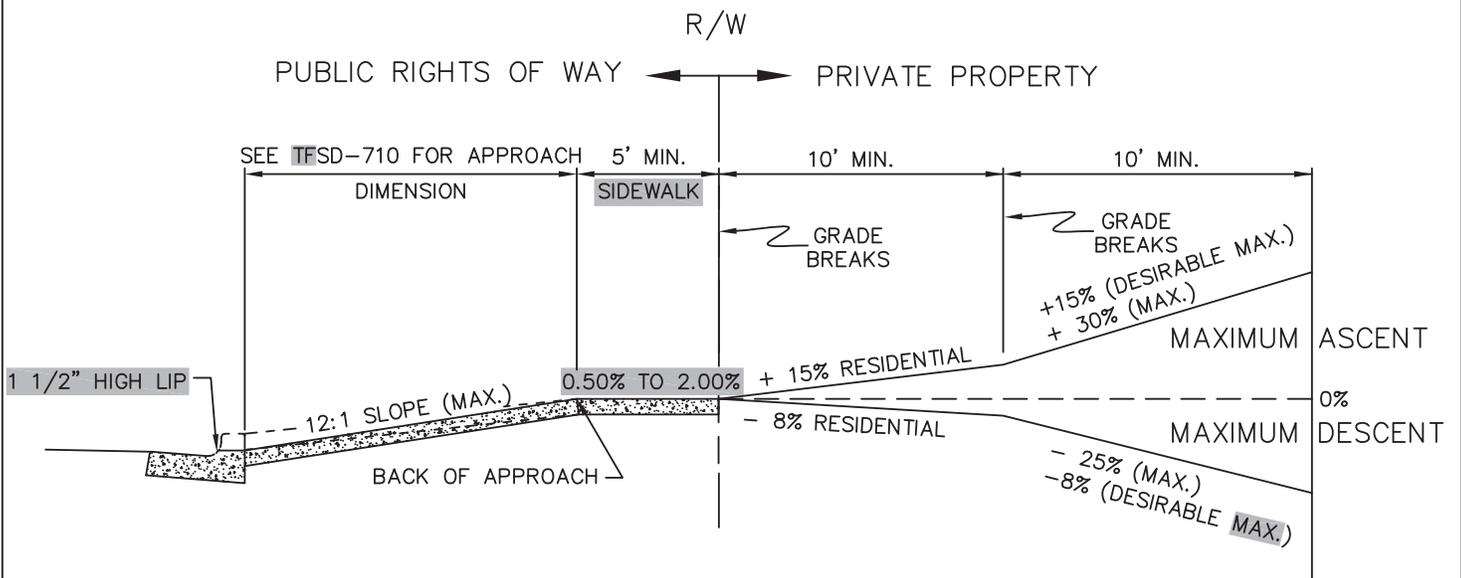
- (A) APPROACH TO CONFORM TO THE LATEST ADA STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPERATE FROM CURB THE SIDEWALK IMMEDIATLEY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 4000 PER SECTION - 703.
- (F) SIDEWALK WIDTH TO BE 5' MINIMUM UNLESS APPROVED BY THE CITY ENGINEER.
- (G) APPROACH WIDTHS CAN BE FOUND ON TABLE.
- (H) ROUTING OF SIDEWALK AROUND APPROACH IS NOT NECESSARY WHEN THE PLANTING STRIP EQUALS OR EXCEEDS 6.5 FEET.
- (I) THE SHADED AREAS ARE PAY LIMITS FOR CONCRETE DRIVEWAY APPROACH.
- (J) DRIVEWAY APPROACHES BETWEEN 20' AND 30' WIDE SHALL HAVE 1 CONTRACTION JOINT CENTERED. DRIVEWAY APPROACHES OVER 30' WIDE SHALL HAVE CONTRACTION JOINTS EVENLY SPACED (MAXIMUM SPACING 15').
- (K) 20' MIN FROM BACK OF SIDEWALK TO ANY STRUCTURE.

Residential	12-36 feet
Joint Use	20-40 feet



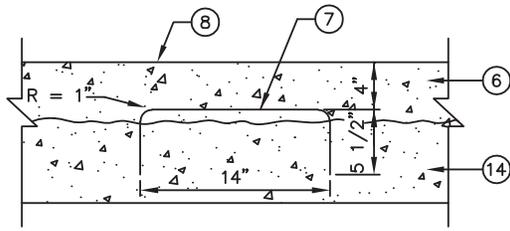
NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST ADA STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802. BASE TO BE 6" FOR COMMERCIAL AND TRUCK APPROACHES.
- (D) ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPERATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 4000 PER SECTION - 703.
- (F) SIDEWALK WIDTH TO BE 6' MINIMUM UNLESS APPROVED BY THE CITY ENGINEER.
- (G) ROUTING OF SIDEWALK AROUND APPROACH IS NOT NECESSARY WHEN THE PLANTING STRIP EQUALS OR EXCEEDS 6.5 FEET.
- (H) DRIVEWAY AND ONSITE TURNAROUND TO BE AN ALL WEATHER SURFACE.

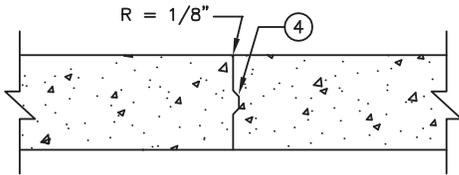


NOTES:

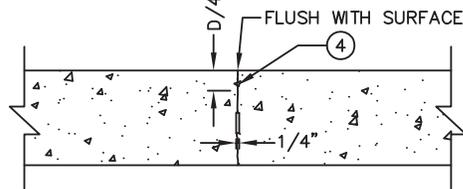
- (A) SAME PRINCIPLES APPLY FOR ALL CURB TYPES.
- (B) MINIMUM AND MAXIMUM GRADES SHOWN FOR ASCENDING AND DESCENDING DRIVES
- (C) DESIGNED TO MINIMIZE BUMPER DRAGGING OF VEHICLES.
- (D) WHEN DIFFERENCE IN GRADE IS GREATER THAN 1' USE THE SLOPES ABOVE.



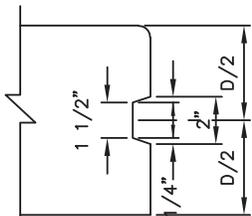
CURB TIE DETAIL



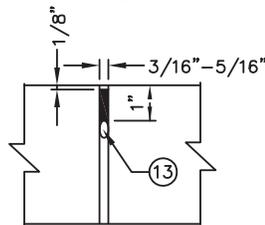
KEYED CONSTRUCTION JOINT - TYPE C



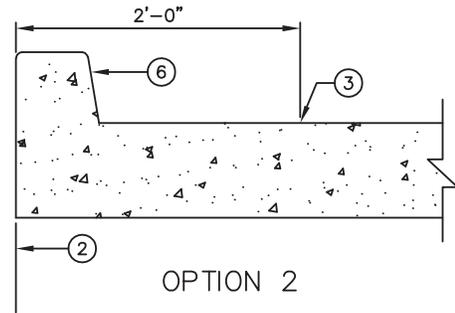
KEYED CONSTRUCTION SAWED OR PREMOLDED STRIP CONSTRUCTION JOINT - TYPE B



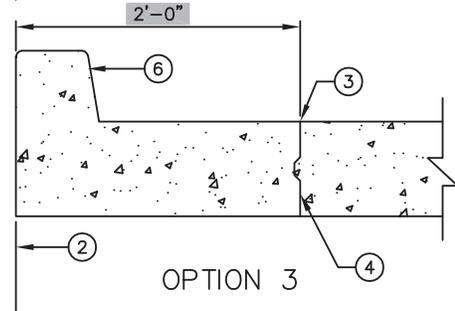
KEYWAY DETAIL (ON 10" THICK PAVEMENT OR GREATER)



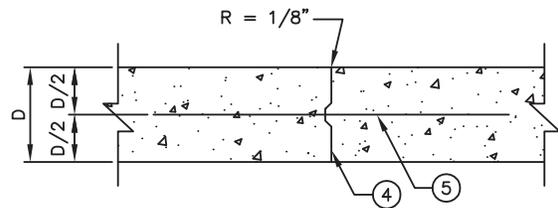
HOT POURED JOINT FILLER DETAIL



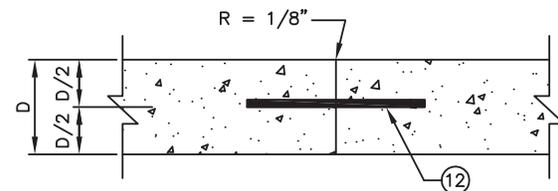
OPTION 2



OPTION 3



KEYED CONSTRUCTION JOINT - TYPE C

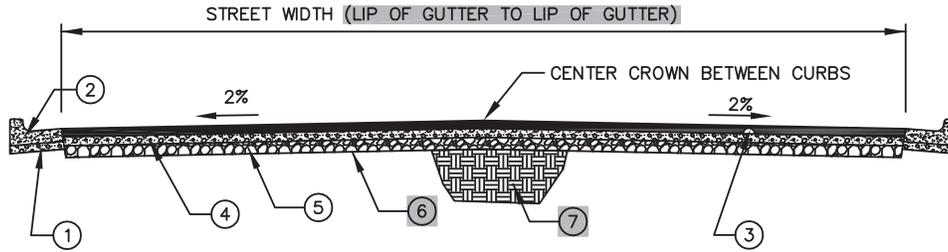


TIED TRANSVERSE CONSTRUCTION JOINT ALTERNATIVE - TYPE D

LEGEND

- ① NOT USED.
- ② CONCRETE PAVEMENT LIMIT.
- ③ PROFILE GRADE.
- ④ KEYWAY FORMED BY FASTENING KEY TO FORM.
- ⑤ NO. 4 DEFORMED TIE BARS 30" LONG AT 30" O.C.
- ⑥ CURB.
- ⑦ NO. 3 CURB TIE PLACE AT 27" O.C.
- ⑧ TOP OF CURB.
- ⑨ NOT USED.
- ⑩ NOT USED.
- ⑪ NOT USED.
- ⑫ NO. 8 SMOOTH EPOXY COATED GREASED ON ONE END TIE BARS 15" LONG AT 12" O.C.
- ⑬ HEAT RESISTANT BACKER ROD OF TYPE RECOMMENDED BY JOINT FILLER MANUFACTURER.
- ⑭ CONCRETE PAVEMENT.

STREET TYPE	TYPICAL STREET WIDTH
ARTERIALS	62'
COLLECTORS	48'
LOCAL	33'
PRIVATE	24' MIN (WITH NO PARKING)



TYPICAL CURB & GUTTER SECTION
N.T.S.

	STREET TYPE	LOCAL / PRIVATE	MINOR COLLECTOR	MAJOR COLLECTOR	ARTERIAL
	SUPERPAVE MIX DESIGN	SP 2 / SP 3	SP 2 / SP 3	SP 3	BY DESIGN
	MINIMUM LAYER THICKNESS (INCHES)				
③	PLANT MIX PAVEMENT	2.5	4.0	5.0	BY DESIGN
④	BASE	4.0	4.0	5.0	
⑤	SUBBASE	10.5	11.5	12.0	
⑥	GEOTEXTILE REQUIRED?	NO	YES	YES	YES
	TOTAL	17.0	19.5	22.0	BY DESIGN

LEGEND

- ① CRUSHED AGGREGATE BASE COURSE UNDER CURB AND SIDEWALK. REFER TO TFSD-709.
- ② 6" VERTICAL CURB AND GUTTER. REFER TO TFSD-701.
- ③ HMA PLANT MIX PAVEMENT SURFACE COURSE.
- ④ BASE TO BE 3/4" TYPE I CRUSHED AGGREGATE BASE.
- ⑤ SUBBASE CAN BE 2" TYPE II OR 3/4" TYPE I CRUSHED AGGREGATE BASE.
- ⑥ TYPE III SUBGRADE SEPARATION GEOTEXTILE.
- ⑦ SUBGRADE.

NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS.
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) SEE TABLE FOR TYPICAL STREET WIDTHS. TYPICAL STREET WIDTHS DO NOT APPLY TO INTERSECTIONS.
- (D) MINIMUM SECTION THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS MAY BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY BUT IN NO CASE SHALL BE LESS THAN VALUES LISTED IN THE TABLE ABOVE. ARTERIALS BY DESIGN ONLY BUT IN NO CASE LESS THAN MAJOR COLLECTOR THICKNESS.
- (E) MATCH PAVEMENT TYPE OF ADJACENT EXISTING ROADWAY UNLESS OTHERWISE APPROVED BY CITY.
- (F) STANDARD CURB AND GUTTER REQUIRED, EXCEPT ON LOCAL STREETS WHERE CURB CALCULATIONS ALLOW ROLLED CURB USE BASED ON LOCAL POLICY, SEE SECTION 700.
- (G) CONCRETE SIDEWALK REQUIRED PER TFSD-709. SEE SECTION-700.
- (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY, 20' LOCAL, 30' COLLECTOR/ARTERIAL, UNLESS APPROVED BY CITY ENGINEER.
- (I) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE. MINIMUM 100' TANGENT LENGTH BETWEEN ALL HORIZONTAL CURVES UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

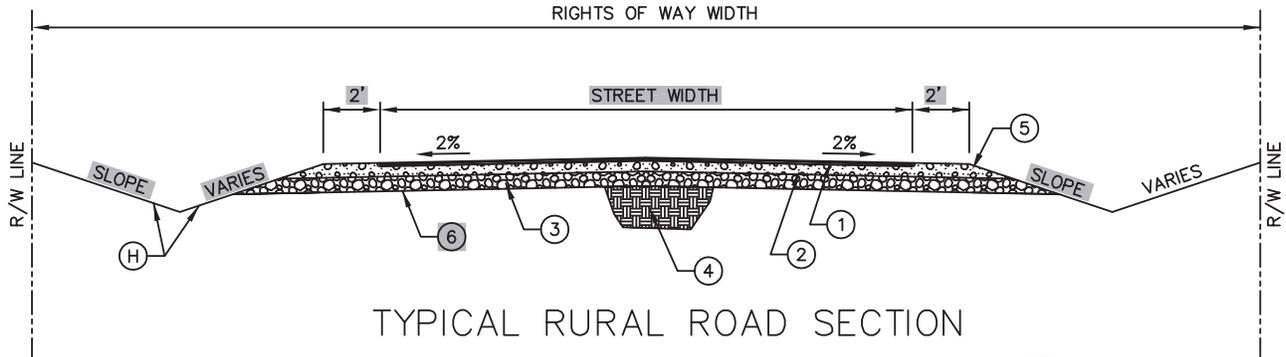
2020

CITY
OF
TWIN FALLS

TYPICAL STREET SECTION

STANDARD DRAWING
NO. TFSD-801

STREET TYPE	TYPICAL STREET WIDTH
ARTERIAL	65'
COLLECTOR	51'
LOCAL / PRIVATE	36'



TYPICAL RURAL ROAD SECTION

N.T.S.

(E)

	STREET TYPE	LOCAL / PRIVATE	MINOR COLLECTOR	MAJOR COLLECTOR	ARTERIAL
	SUPERPAVE MIX DESIGN	SP 2 / SP 3	SP 2 / SP 3	SP 3 / BY DESIGN	BY DESIGN
	MINIMUM LAYER THICKNESS (INCHES)				
①	PLANT MIX PAVEMENT	2.5	4.0	5.0	BY DESIGN
②	BASE	4.0	4.0	5.0	
③	SUBBASE	10.5	11.5	12.0	
⑥	GEOTEXTILE REQUIRED?	NO	YES	YES	YES
	TOTAL	17.0	19.5	22.0	BY DESIGN

LEGEND

- ① HMA PLANT MIX PAVEMENT SURFACE COURSE.
- ② 3/4" TYPE I CRUSHED AGGREGATE BASE.
- ③ SUBBASE CAN BE 2" TYPE II OR 3/4" TYPE I CRUSHED AGGREGATE BASE COURSE.
- ④ SUBGRADE.
- ⑤ CRUSHED AGGREGATE SHOULDERS.
- ⑥ SUBGRADE SEPARATION GEOTEXTILE.

NOTES:

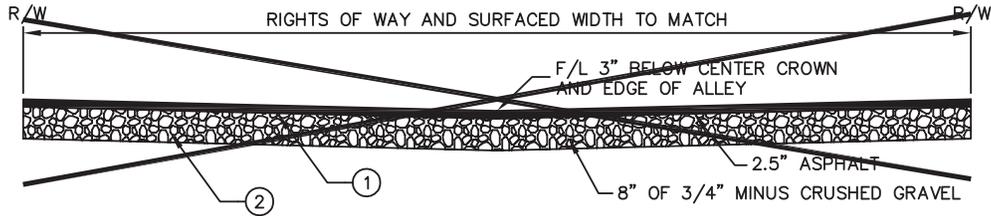
- (A) RURAL STREET SECTION USED FOR ARTERIAL, COLLECTOR, AND LOCAL TYPE STREETS IN THE AREAS OUTSIDE THE ESTABLISHED URBAN AREAS THE USE OF THIS SECTION SUBJECT TO LOCAL POLICY AND TYPE OF USE (SEE CITY OF TWIN FALLS MASTER TRANSPORTATION PLAN).
- (B) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS.
- (C) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
- (D) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (E) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY. ARTERIALS BY DESIGN ONLY BUT IN NO CASE LESS THAN MAJOR COLLECTOR THICKNESS.
- (F) STREET CORNER RADII SIZES FOR EDGE OF PAVEMENT SET BY LOCAL POLICY, 20' LOCAL AND 30' ARTERIAL/COLLECTOR.
- (G) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.
- (H) BORROW DITCHES SHALL HAVE A MINIMUM 3:1 FORE SLOPE WITH 4:1 SLOPE RECOMMENDED. THE BACK SLOPE OF BORROW DITCH SHALL BE MINIMUM 1:1 BACK SLOPE WITH 4:1 BACK SLOPE RECOMMENDED. THE FLOW LINE OF THE DITCH SHALL BE MINIMUM 6" BELOW THE LOWEST AGGREGATE BASE COURSE TO ENCOURAGE DRAINAGE. PIPING DITCH UNDER DRIVEWAYS REQUIRED WITH APPROVED LENGTH AND TYPE.

2020

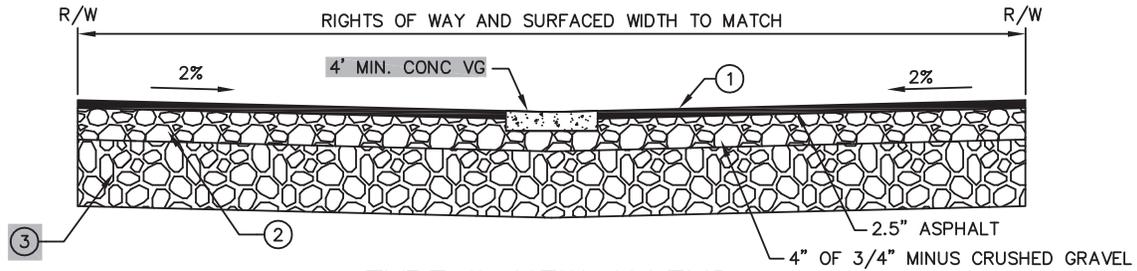
CITY
OF
TWIN FALLS

TYPICAL RURAL STREET SECTION

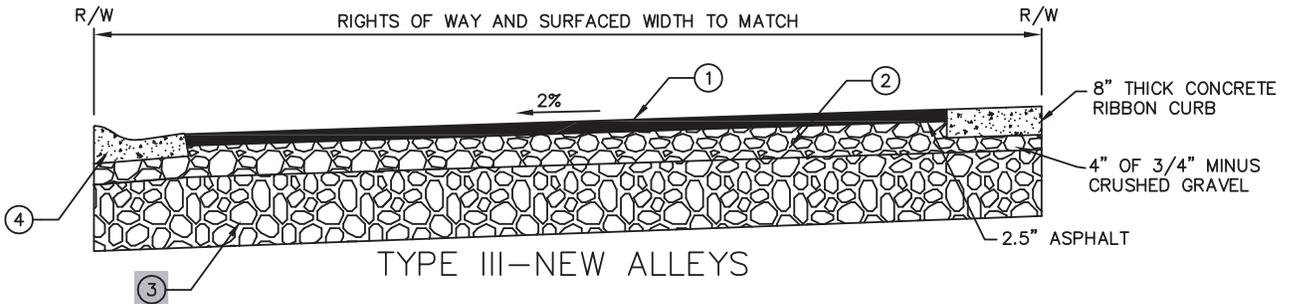
STANDARD DRAWING
NO. **TFSD-802**



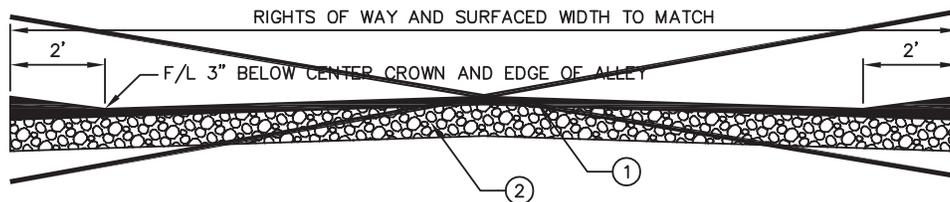
TYPE I—EXISTING GRAVEL ALLEYS OR NEW ALLEYS



TYPE II—NEW ALLEYS



TYPE III—NEW ALLEYS



TYPE IV—NEW ALLEYS

LEGEND

- ① HMA PLANT MIX PAVEMENT SURFACE COURSE.
- ② CRUSHED AGGREGATE BASE COURSE.
- ③ 14" OF 2" TYPE II OR 3/4" TYPE I CRUSHED AGGREGATE.
- ④ 3" ROLLED CURB AND GUTTER OR VALLEY GUTTER.

NOTES:

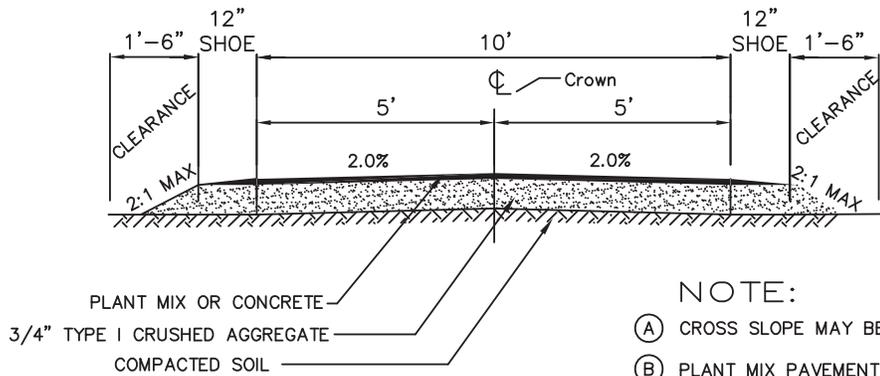
- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS.
- (B) ALLEY PROFILE GRADES 0.4% MINIMUM.
- (C) RIGHT-OF-WAY WIDTHS AND ALLEY WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.

2020

CITY
OF
TWIN FALLS

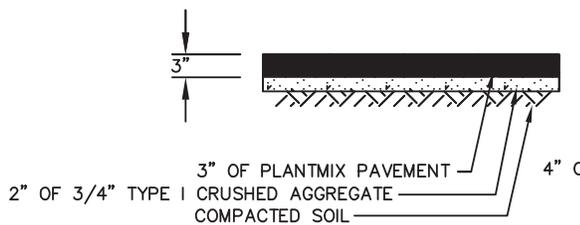
TYPICAL PAVED
ALLEY SECTION

STANDARD DRAWING
NO. **TFSD-803**

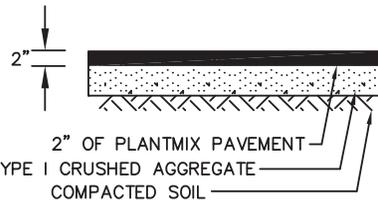


- NOTE:
- (A) CROSS SLOPE MAY BE TO ONE SIDE OR CROWNED.
 - (B) PLANT MIX PAVEMENT MAY ONLY BE USED ON CANYON RIM TRAIL AND ROCK CREEK TRAIL UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

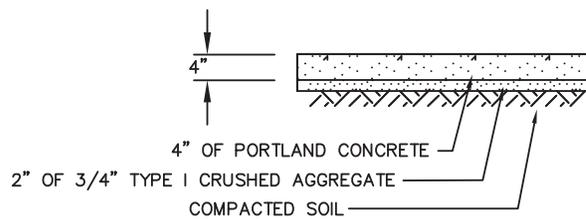
TYPICAL TWO WAY BIKE PATH
N.T.S.



BIKE PATH SECTION "A"
N.T.S.

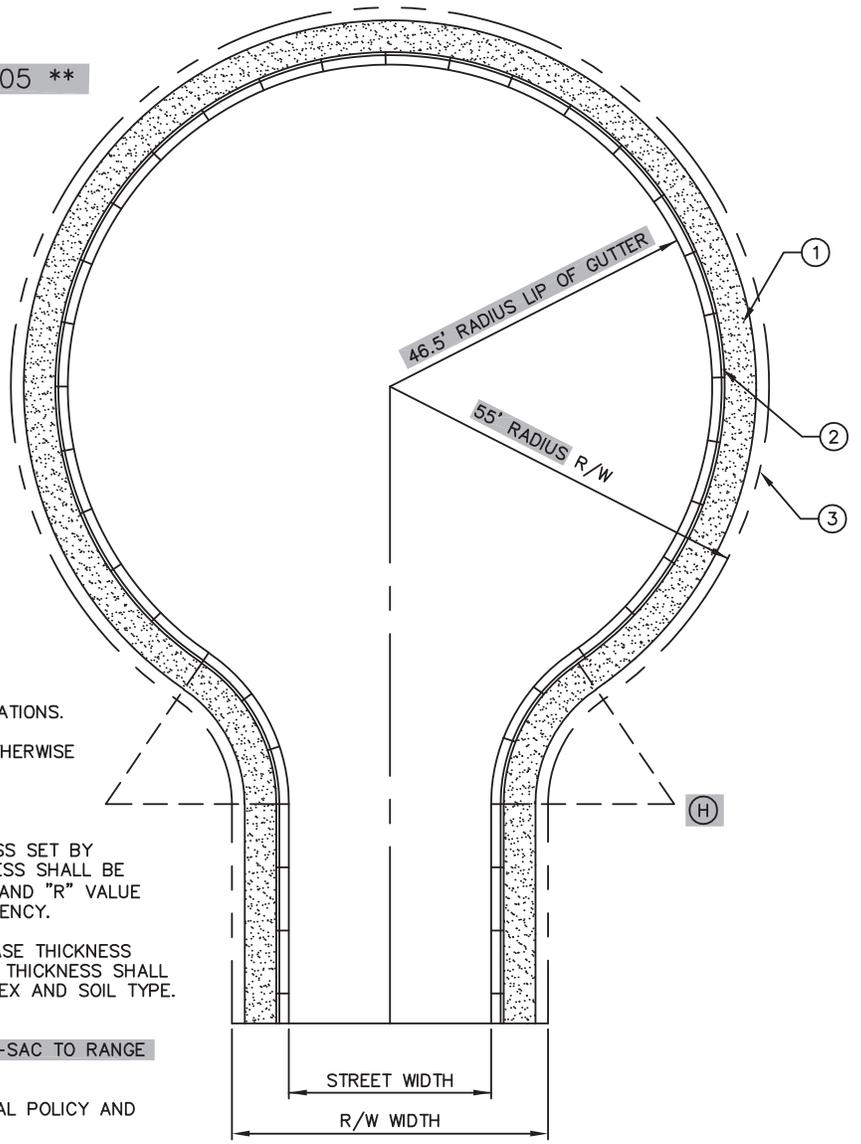


BIKE PATH SECTION "B"
N.T.S.



BIKE PATH SECTION "C"
N.T.S.

**** FOR FIRE ACCESS ROAD SEE TFSD-305 ****



NOTES:

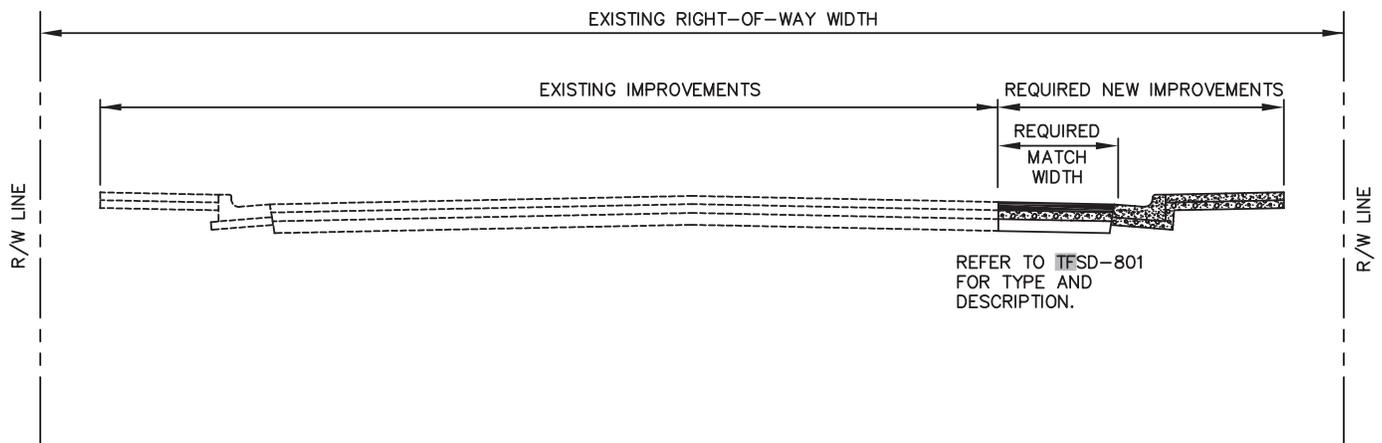
- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS.
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) NOT USED.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) MINIMUM CONCRETE PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE SECTION-700.
- (F) PLANT MIX PAVEMENT FINISHED GRADE IN CUL-DE-SAC TO RANGE BETWEEN 1% AND 3%.
- (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE SECTION-700.
- (H) STREET CORNER RADII 20' MINIMUM.
- (I) CUL-DE-SAC MAY BE OFFSET TO THE LEFT OR RIGHT SO THAT APPROACH STREET CURB IS TANGENT WITH CUL-DE-SAC CIRCLE.

LEGEND

- ① CONCRETE SIDEWALK.
- ② STANDARD OR ROLLED CURB.
- ③ RIGHT-OF-WAY LINE.

STREET TYPE	LOCAL / PRIVATE	MINOR COLLECTOR	MAJOR COLLECTOR	ARTERIAL
SUPERPAVE MIX DESIGN	SP 2 / SP 3	NOT ALLOWED	NOT ALLOWED	NOT ALLOWED
MINIMUM LAYER THICKNESS (INCHES)				
PLANT MIX PAVEMENT	2.5	CUL-DE-SACS NOT ALLOWED ON MINOR OR MAJOR COLLECTORS OR ARTERIAL STREETS.		
BASE	4.0			
SUBBASE	10.5			
GEOTEXTILE REQUIRED?	NO			
TOTAL	17.0			

2020



NOTES:

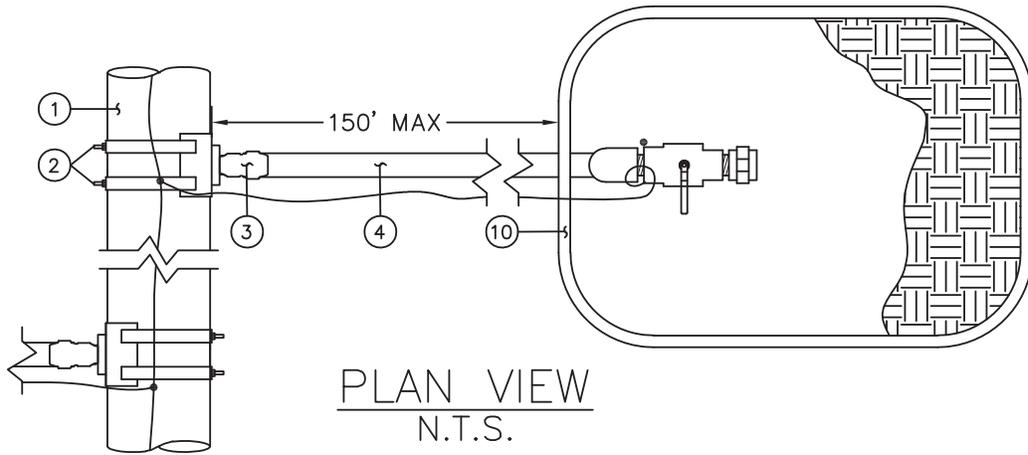
- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS.
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) MINIMUM CONCRETE PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE SECTION-700.
- (F) STANDARD CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE SECTION-700.
- (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE SECTION-700.
- (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY AND TYPE OF USE.
- (I) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, MATCHING EXISTING IMPROVEMENTS AND SET BY LOCAL POLICY AND TYPE OF USE.
- (J) ASPHALT MATCH SHALL DRAIN TOWARD EDGE OF PAVEMENT OR CONCRETE CURB AND SHALL HAVE A MINIMUM CROSS SLOPE OF 1% WITH 2% RECOMMENDED. CROSS SLOPE OF 4% MAXIMUM IN TRAFFIC LANE WITH 8% MAXIMUM IN PARKING AREA.
- (K) EXISTING ASPHALT SHALL BE CUT TO A NEAT STRAIGHT LINE PARALLEL AND/OR PERPENDICULAR TO THE CENTERLINE OF THE STREET AND SEALED WITH AN ASPHALT TACK COAT BEFORE PAVING.
- (L) SAWCUT TO BE AS FAR AS POSSIBLE FROM VEHICULAR WHEEL PATH. CRACK SEAL SAWCUT(S). SEE CITY OF TWIN FALLS REVISIONS SECTION 307.

2020

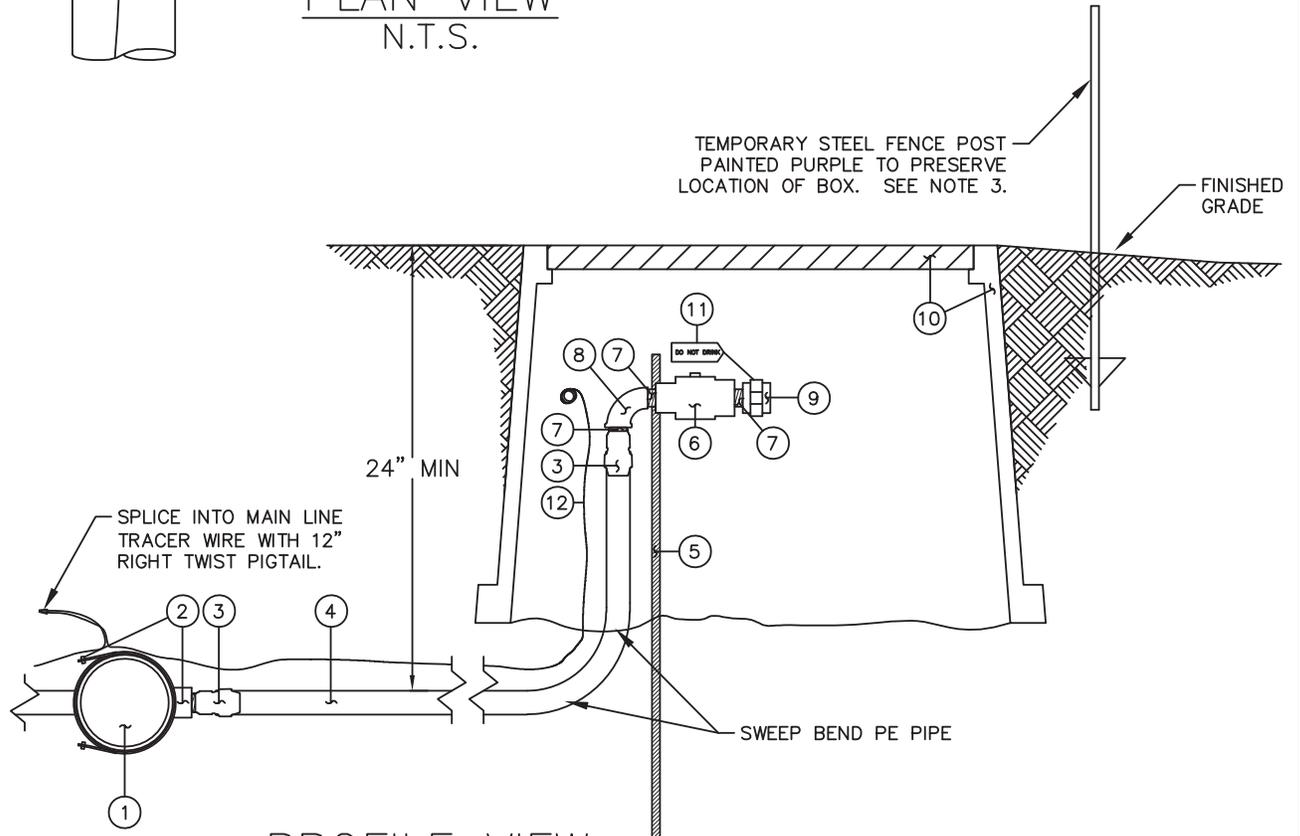
CITY
OF
TWIN FALLS

TYPICAL STREET
WIDENING

STANDARD DRAWING
NO. TFS-806



PLAN VIEW
N.T.S.



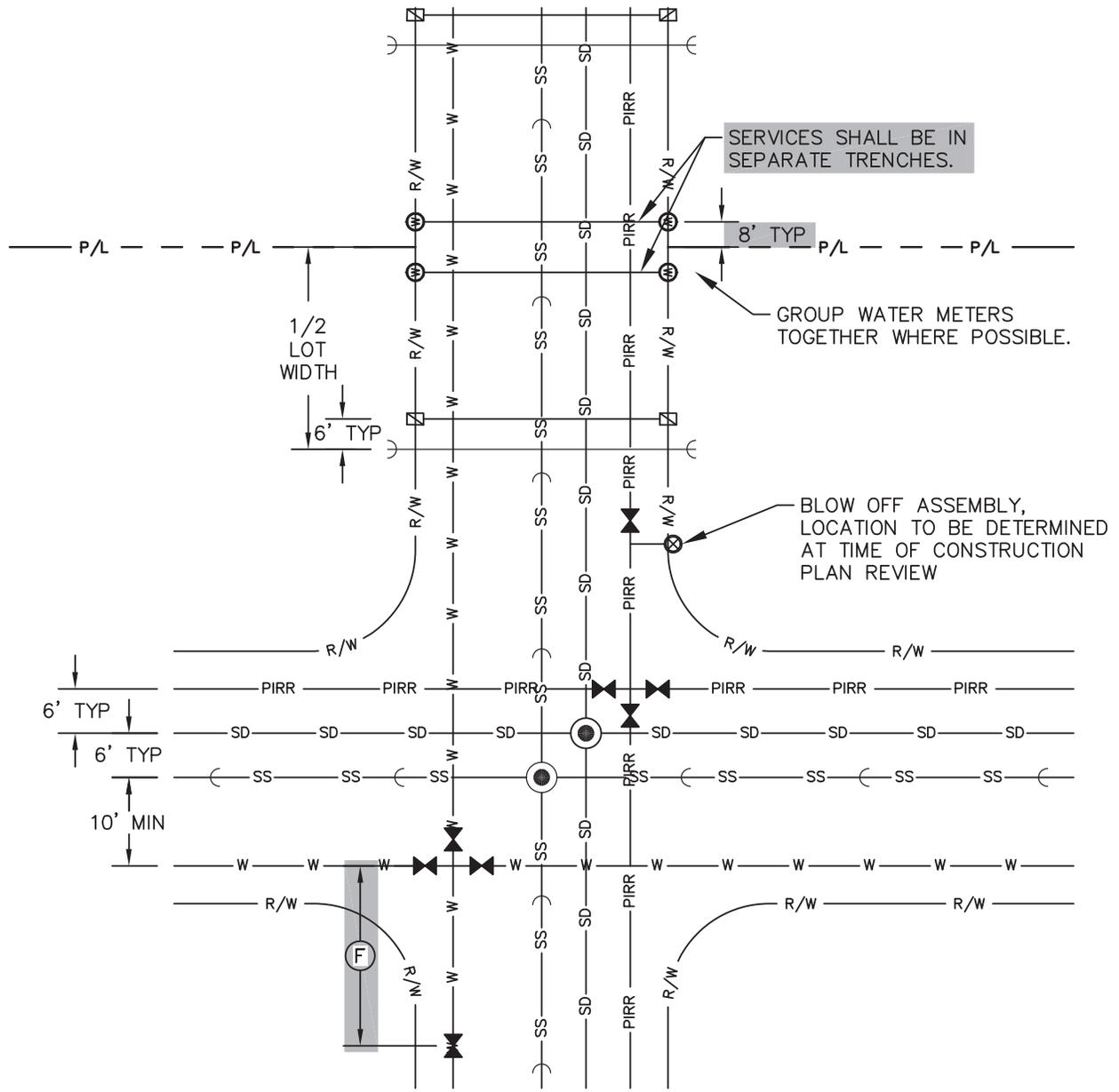
PROFILE VIEW
N.T.S.

NOTES:

1. DRAWING AND MATERIAL LIST APPLICABLE TO ONE INCH SERVICE LINES.
2. SEE STD. DWG. TFSD-903 FOR LOCATIONS OF SERVICE LINES.
3. INSTALL TEMPORARY STEEL POST DURING SUBDIVISION DEVELOPMENT. TO BE REMOVABLE AT THE TIME OF LOT DEVELOPMENT.
4. FOR MORE INFORMATION ABOUT MATERIALS CONTACT THE CITY OF TWIN FALLS WATER DEPARTMENT (208) 736-2275.
5. CONNECT SERVICE LINE LOCATE WIRE WITH MAIN LOCATE WIRE WITH WATERPROOF SPLICE CONNECTOR.
6. STAMP 4" LETTER "W" AND/OR "I" INTO CONCRETE WHERE WATER AND IRRIGATION SERVICES CROSS CURB.

LEGEND:

1. IRRIGATION MAIN (SIZE VARIES).
2. 1" FEMALE IPS DOUBLE STRAP TAPPING SADDLE.
3. 1" BRASS MALE IPS X CTS GRIP JOINT ADAPTER.
4. 1" 200 PSI COPPER TUBE SIZE POLY PIPE.
5. ANCHOR #4 REBAR 4' LONG TO CTS POLY PIPE.
6. 1" FULL PORT STAINLESS STEEL FEMALE BALL VALVE WITH STAINLESS STEEL HANDLE.
7. 1" BRASS CLOSE NIPPLE.
8. FEMALE 90° ELBOW.
9. 1" BRASS UNION.
10. HDPE IRRIGATION JUMBO BOX. MINIMUM SIZE OF BOX IS 30" x 17" x 18" (L x W x D). LID TO BE PURPLE.
11. "DO NOT DRINK" TAG TO BE CLEARLY VISIBLE ON UNION FITTING.
12. 12 AWG SOLID INSULATED LOCATE WIRE ATTACHED TO SERVICE LINE LONG ENOUGH TO BE PULLED UP AND OUT TO ABOVE GROUND LEVEL.



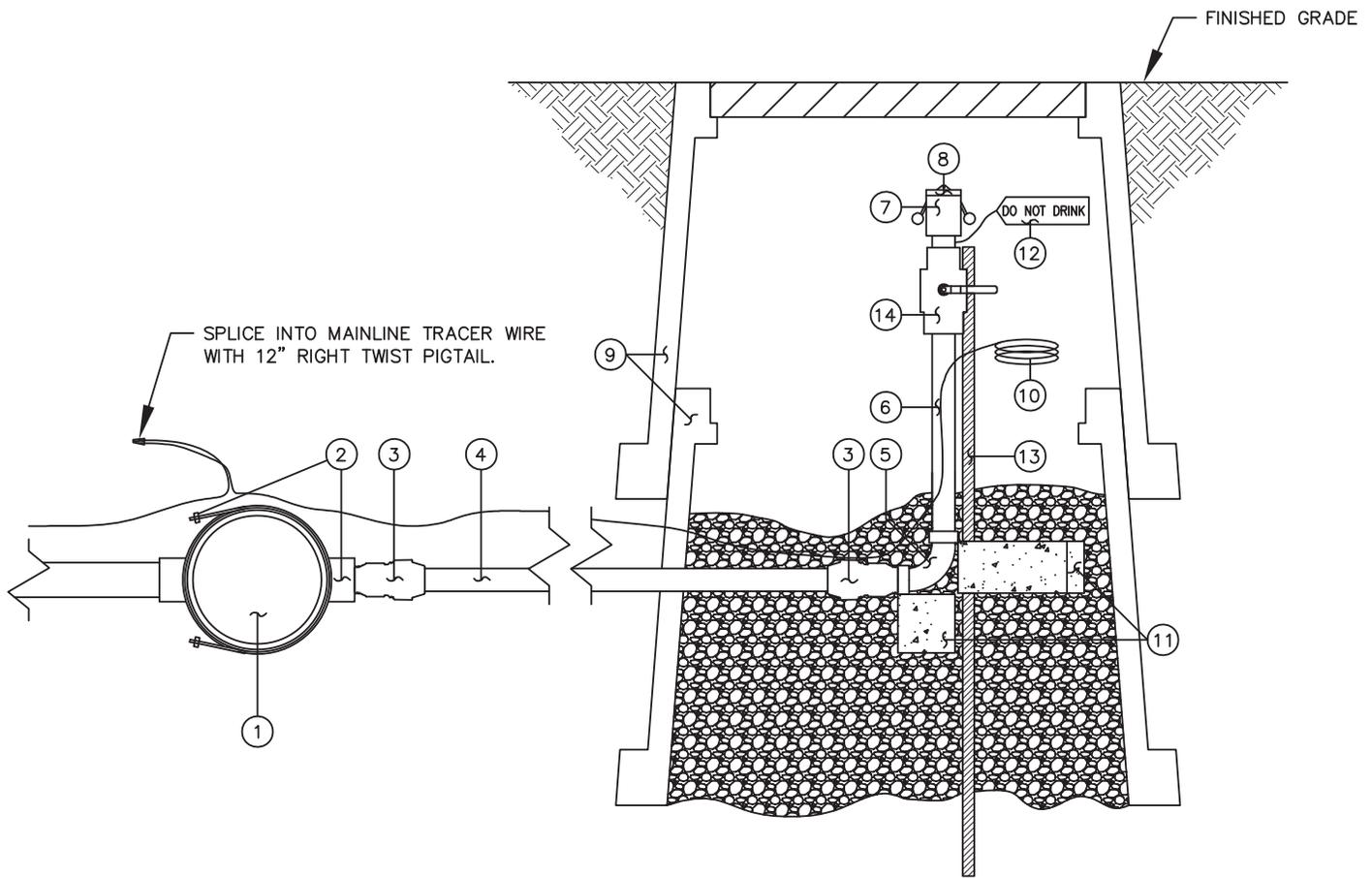
NOTE:

- (A) VERIFY SERVICE LINE LOCATION WITH ENGINEER AND LOCAL IRRIGATION AUTHORITY, PRIOR TO CONSTRUCTION.
- (B) "DO NOT DRINK" TAG TO BE CLEARLY VISIBLE ON IRRIGATION SERVICES AND PRESSURE PIPE TERMINATIONS.
- (C) 12 AWG SOLID COPPER INSULATED LOCATOR WIRE LONG ENOUGH TO BE PULLED UP AND OUT TO ABOVE GROUND LEVEL.
- (D) PLASTIC TAPE IS REQUIRED ONE FOOT (1') BELOW GROUND DIRECTLY ABOVE THE PIPE. ABOVE GROUND ALL PIPES MUST BE CLEARLY LABELED "DO NOT DRINK".
- (E) ALL POTABLE/NON-POTABLE **SEPARATIONS** TO BE PER DEQ REQUIREMENTS.
- (F) **CROSSES REQUIRE 4 VALVES. TEES REQUIRE 3 VALVES. VALVES MAY BE MOVED AWAY FROM A CROSS OR TEE A MAXIMUM OF 150' IF APPROVED BY THE CITY.**

LEGEND:

STORM DRAIN LINE	—— SD —— SD ——
WATER LINE	—— W —— W —— W ——
SEWER LINE	—— SS —— SS —— SS ——
PRESSURE IRRIGATION LINE	—— PIRR ——
RIGHT-OF-WAY LINE	—— R/W ——
PROPERTY LINE	—— P/L ——
SEWER SERVICE	⌋ ——
WATER SERVICE	⊕ ——
PRESSURE IRRIGATION SERVICE	⊠ ——
MANHOLE	⊙
VALVE	⊕

2020



LEGEND

1. IRRIGATION MAIN (SIZE VARIES).
2. 2" FEMALE IRON PIPE SIZE (IPS) DOUBLE STRAP TAPPING SADDLE.
3. 2" BRASS MALE IPS X COPPER TUBE SIZE (CTS) GRIP JOINT ADAPTER.
4. 2" 200 PSI CTS POLY PIPE.
5. 2" BRASS 90° ELBOW.
6. 2" X 24" SCHEDULE 80 PVC THREADED RISER.
7. 2" THREADED X ALUM. KAM-LOCK QUICK COUPLING MALE ADAPTER.
8. 2" KAM-LOCK CAP.
9. HDPE IRRIGATION BOXES (2 STACKED) WITH PURPLE LID. MINIMUM SIZE OF EACH BOX IS 13" x 20" x 12" (L x W x D).
10. 12 GAUGE SOLID INSULATED COPPER LOCATE WIRE ATTACHED TO BLOW-OFF LINE LONG ENOUGH TO BE PULLED UP AND OUT TO ABOVE GROUND LEVEL.
11. PRE-CAST CONCRETE BLOCKS WEDGED IN PLACE.
12. "DO NOT DRINK" TAG TO BE CLEARLY VISIBLE ON IRRIGATION FAUCETS AND PRESSURE PIPE TERMINATIONS.
13. ANCHOR AND ATTACH 4' LONG #4 REBAR TO PVC RISER.
14. 2" FULL PORT STAINLESS STEEL FEMALE BALL VALVE WITH STAINLESS STEEL HANDLE.

NOTES

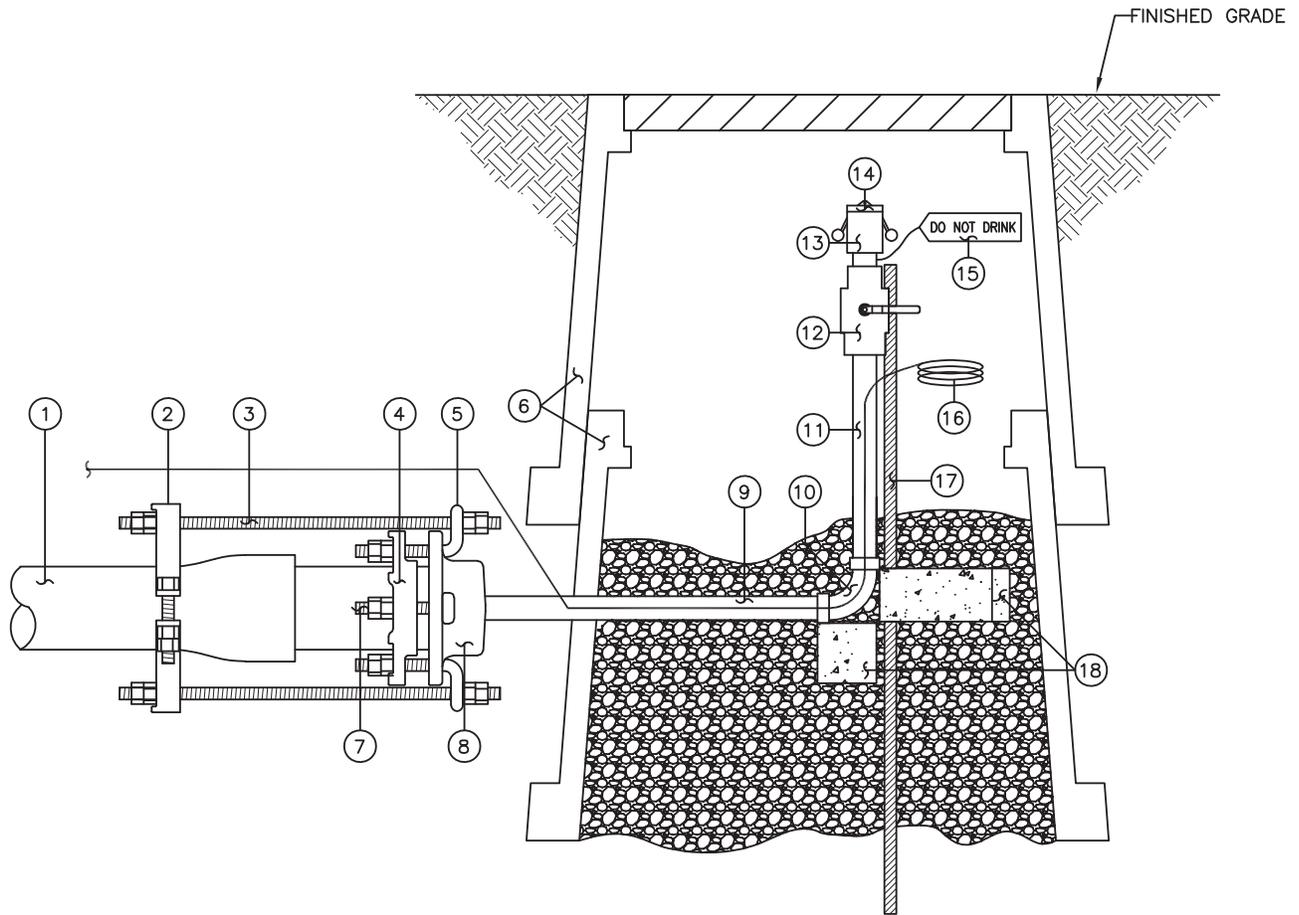
1. USE ONLY PRODUCTS LISTED OR PRE-APPROVED EQUAL.
2. ABOVE GROUND ALL PIPES MUST BE CLEARLY LABELED "DO NOT DRINK".
3. TO BE PLACED BEHIND CURB, GUTTER, AND SIDEWALK.

2020

CITY
OF
TWIN FALLS

PRESSURE IRRIGATION
2" BLOW-OFF ASSEMBLY

STANDARD DRAWING
NO. TFSD-904



LEGEND

1. IRRIGATION MAIN (SIZE VARIES). BELL END REQUIRED FOR TEMPORARY CAP INSTALLATION WITH AN APPROXIMATELY 18" LONG PIPE SECTION.
2. SPLIT RESTRAINER FASTENED TO IRRIGATION MAIN AT THE THROAT OF THE BELL.
3. ALL THREAD CUT TO LENGTH AND CAPPED ON BOTH ENDS WITH TWO NUTS EACH TO LOCK IN PLACE.
4. ROMAC GRIPRING OR APPROVED EQUIVALENT.
5. MATCH THE NUMBER OF 90° EYE BOLTS WITH THE NUMBER OF HOLES PROVIDED IN THE SPLIT RESTRAINER FOR THE SIZE OF THE IRRIGATION MAIN. FASTEN EACH EYE BOLT WITH TWO NUTS TO LOCK IN PLACE.
6. HDPE IRRIGATION BOXES (2 STACKED). MINIMUM SIZE OF EACH BOX IS 13" x 20" x 12" (L x W x D).
7. USE REMAINING FACTORY SUPPLIED BOLTS AND NUTS TO SECURE AND LOCK GRIP RING AND CAP TO THE IRRIGATION MAIN.
8. MJ CAP WITH 2" IPS FEMALE THREAD.
9. 2" X 12"-18" SCHEDULE 80 PVC THREADED NIPPLE.
10. 2" BRASS 90° ELBOW.
11. 2" X 24" SCHEDULE 80 PVC THREADED RISER. RISER LENGTH MAY VARY SLIGHTLY BASED ON BURY DEPTH OF MAINLINE.
12. 2" FULL PORT STAINLESS STEEL BALL VALVE WITH STAINLESS STEEL HANDLE.
13. 2" THREADED X ALUM. KAM-LOCK QUICK COUPLING MALE ADAPTER.
14. KAM-LOCK CAP.
15. "DO NOT DRINK" TAG TO BE CLEARLY VISIBLE ON IRRIGATION FAUCETS AND PRESSURE PIPE TERMINATIONS.
16. 12 GAUGE INSULATED SOLID COPPER LOCATOR WIRE LONG ENOUGH TO BE PULLED UP AND OUT TO ABOVE GROUND LEVEL.
17. ANCHOR AND ATTACH #4 REBAR 4' LONG TO PVC RISER.
18. PRE-CAST CONCRETE BLOCKS WEDGED IN PLACE.

NOTES

1. USE ONLY PRODUCTS LISTED OR PRE-APPROVED EQUAL.
2. WHEN CONSTRUCTING THIS BLOW-OFF ASSEMBLY, INSTALL AN EIGHTEEN INCH (18") LENGTH OF PIPE INTO THE BELL END OF THE LAST LENGTH OF MAIN.
3. ABOVE GROUND ALL PIPES MUST BE CLEARLY LABELED "DO NOT DRINK".
4. TO BE PLACED BEHIND CURB, GUTTER, AND SIDEWALK UNLESS APPROVED BY THE CITY ENGINEER.
5. WHEN ASSEMBLY IS ALLOWED TO BE LEFT IN THE ROADWAY, IT IS TO BE PROTECTED FROM TRAFFIC AND CONSTRUCTION EQUIPMENT.

2020

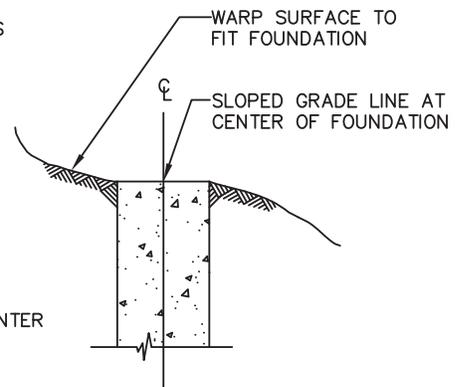
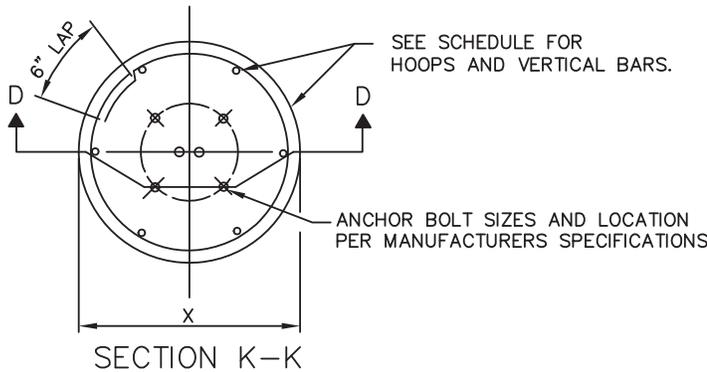
CITY
OF
TWIN FALLS

TEMPORARY PRESSURE
IRRIGATION BLOW-OFF ASSEMBLY

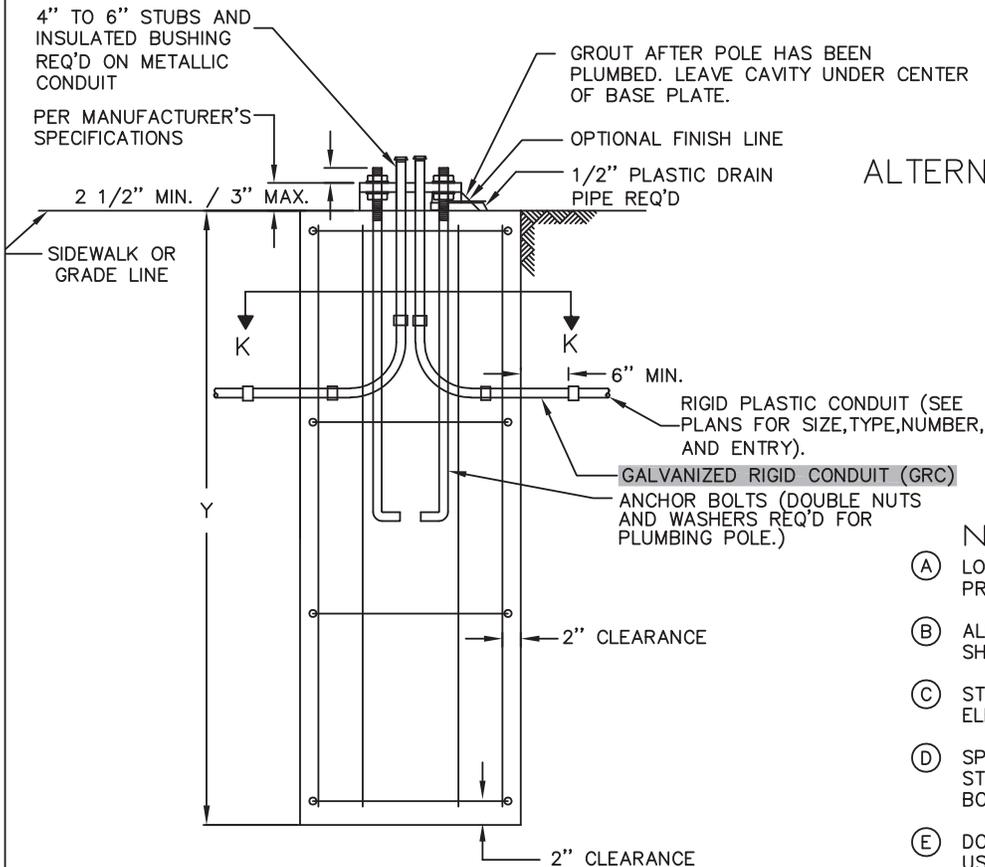
STANDARD DRAWING
NO. TFSD-905

POLE FOUNDATION SCHEDULE

POLE TYPE	MT.HT.	MASTARM LENGTH	FOUNDATION TYPE	X	Y	HOOPS			VERTICAL RODS			CU. YDS. CONCRETE
						NO.	SIZE	LIN. FT.	NO.	SIZE	LIN. FT.	
PEDESTRIAN SIGNAL POLE	10'	-	A	2'-0"	5'-0"	4	#4	23'-0"	6	#4	28'-0"	.6
LIGHT POLE	25'-30'	ALL	A	2'-0"	5'-0"	4	#4	23'-0"	6	#4	28'-0"	.6
LIGHT POLE	35'	ALL	B	2'-6"	7'-0"	4	#4	29'-4"	6	#6	40'-0"	1.3
LIGHT POLE	40'-50'	ALL	C	3'-0"	8'-0"	5	#4	44'-2"	8	#6	61'-4"	2.1
SIGNAL POLE	-	20' - 45'	D	3'-0"	9'-0"	5	#4	44'-2"	8	#6	69'-4"	2.4
PED. PUSHBUTTON POLE	4'-0"	-	E	1'-6"	2'-6"	-	-	-	-	-	-	.2
DUAL MASTARM SIGNAL POLE	-	ALL	F	3'-0"	12'-0"	8	#5	70'-8"	12	#6	140'	3.1
SIGNAL POLE	-	50' - 55'	F	3'-0"	12'-0"	8	#5	70'-8"	12	#6	140'	3.1
SIGNAL POLE	-	60' - 65'	G	3'-6"	14'-0"	9	#5	78'-10"	12	#6	166'	3.7



ALTERNATE SLOPED GRADE SECTION



TYPICAL POLE FOUNDATION SECTION D-D

- NOTES:
- (A) LOCATE FOUNDATIONS AS INDICATED ON THE PROJECT PLAN SHEETS.
 - (B) ALL CONDUIT ELBOWS USED IN CONCRETE BASES SHALL BE GRC.
 - (C) STEEL CONDUIT SHALL BE USED TO EXTEND ELBOWS BEYOND FOUNDATION.
 - (D) SPARE STUBOUTS SHALL BE TERMINATED WITH A STEEL COUPLING AND PLASTIC PUSH PLUG AT BOTH ENDS.
 - (E) DO NOT GROUT IF BREAKAWAY DEVICES ARE USED.
 - (F) SEE SD-1117 FOR GROUNDING DETAILS.

2020

CITY OF TWIN FALLS

STANDARD POLE FOUNDATION DETAIL

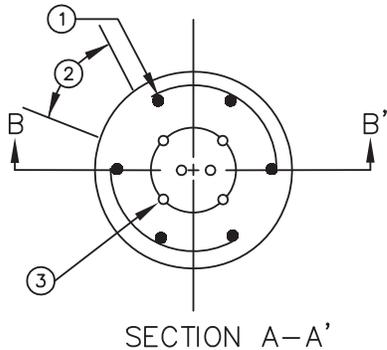
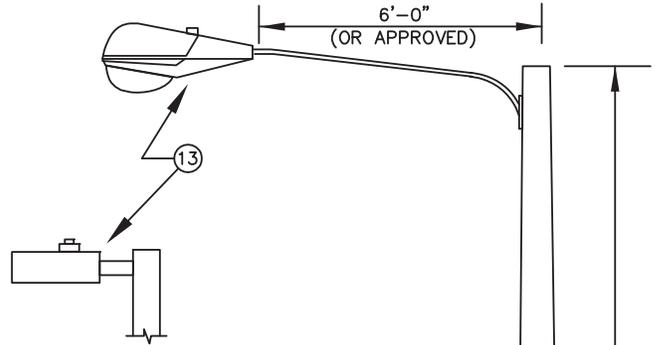
STANDARD DRAWING NO. TFS-1109

LEGEND

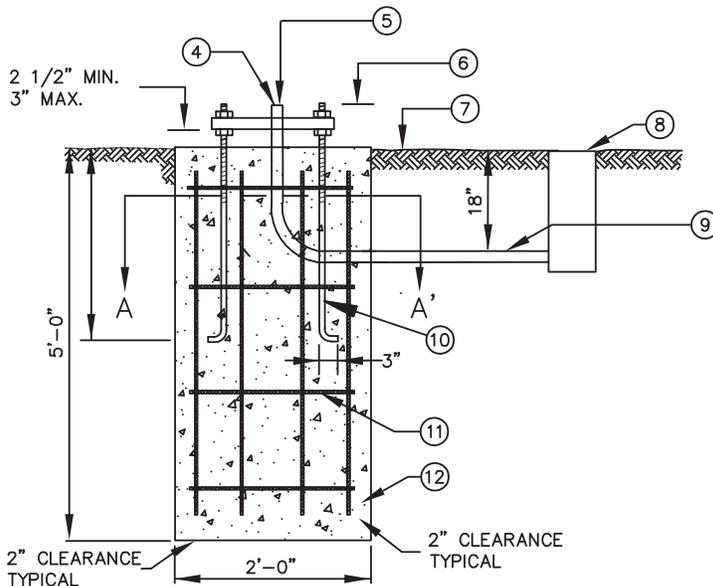
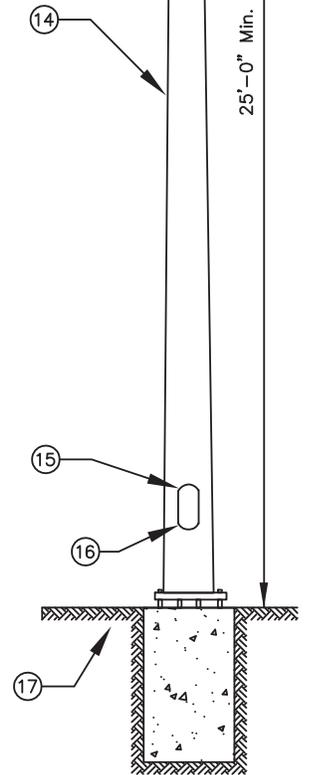
- ① 6-#4 VERTICAL REBAR.
- ② 6" LAP.
- ③ ANCHOR BOLT SIZES AND LOCATIONS PER MANUFACTURER'S SPECIFICATIONS.
- ④ 4" TO 6" STUBS.
- ⑤ INSULATED BUSHING REQUIRED WHEN CONDUIT IS USED. PER MANUFACTURER'S SPECIFICATIONS.
- ⑥ PER MANUFACTURER'S SPECIFICATIONS.
- ⑦ SIDEWALK LINE OR GRADE LINE
- ⑧ J-BOX.
- ⑨ 1" MINIMUM DIAMETER.
- ⑩ (4) ANCHOR BOLTS WITH DOUBLE NUTS FOR PLUMBING POLE, GALVANIZED, WITH (3) GALVANIZED NUTS AND (2) GALVANIZED WASHERS PER BOLT.
- ⑪ 4-#4 REBAR HOOPS.
- ⑫ C-4000 CONCRETE AS PER SECTION 700 ISPWC.
- ⑬ SEE STANDARD SPECIFICATIONS FOR REQUIRED FIXTURES.
- ⑭ GENERAL ELECTRIC ALUMINUM SEAMLESS SHAFT NO. C89H235 OR UNION METAL DESIGN 203 OR APPROVED EQUAL.
- ⑮ FUSE LOCATION.
- ⑯ WATER-TIGHT HANDHOLE.
- ⑰ BACKFILL TO BE COMPACTED TO 95%.

NOTE:

- (A) SEE ISPWC FOR EXCAVATION, BACKFILLING AND CONSTRUCTION OF POLE FOUNDATION, WIRING, AND ACCEPTANCE OR REJECTION OF THE WORK.
- (B) GROUND POLE TO THE SERVICE POINT VIA #6 AWG BARE WIRE PER NATIONAL ELECTRICAL CODE.
- (C) #10 AWG WIRE FROM LUMINAIRE TO FUSE.
- (D) FOR GROUNDING DETAILS SEE TFS-1117.



POLE FOUNDATION SCHEDULE					
HOOPS*			VERTICAL RODS*		C.Y. CONC. FND.
QTY.	SIZE	L.F.	QTY	SIZE	
4	#4	23'-0"	6	#4	0.6



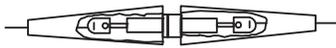
TYPICAL POLE FOUNDATION SECTION B-B'

2020

CITY OF TWIN FALLS

25' STANDARD METAL STREETLIGHT WITH MAST ARM GREATER THAN 6'

STANDARD DRAWING NO. TFS-1116



FUSED "IN-LINE" TYPE WIRE CONNECTOR
SET SCREW TYPE ONLY

Photo Cell (Twist Lock type) Mark P.E.
Control & Lamps with installation date.

NOTES:

- (1) THE CONTRACTOR SHALL VERIFY LINE VOLTAGE PRIOR TO CONNECTING WIRE CONNECTORS.
- (2) CONTRACTOR SHALL CONNECT CONDUCTOR FROM THE WIRE CONNECTOR TO NEW LUMINAIRE WITH A NO. 10 AWG. TYPE THW. 600V INSULATED WIRE.

Install Fuse:
Fast acting-100K RMS ATMR3 Amps-600VAC
Ferraz Shawmut Model FEB-81-81-BA
(or approved Equivalent).

Install Fuse:
Fast acting-100K RMS ATMR15 Amps-600VAC
Ferraz Shawmut Model FEB-81-81-BA
(or approved Equivalent).

Install Fused Junction Box
(Approved Underground enclosure)
To be set within 3 feet of
Power Company
J-Box or Transformer.

NEC Code Approved Connector

Hand Hole

NEC Code
Approved
Grounding
Connector

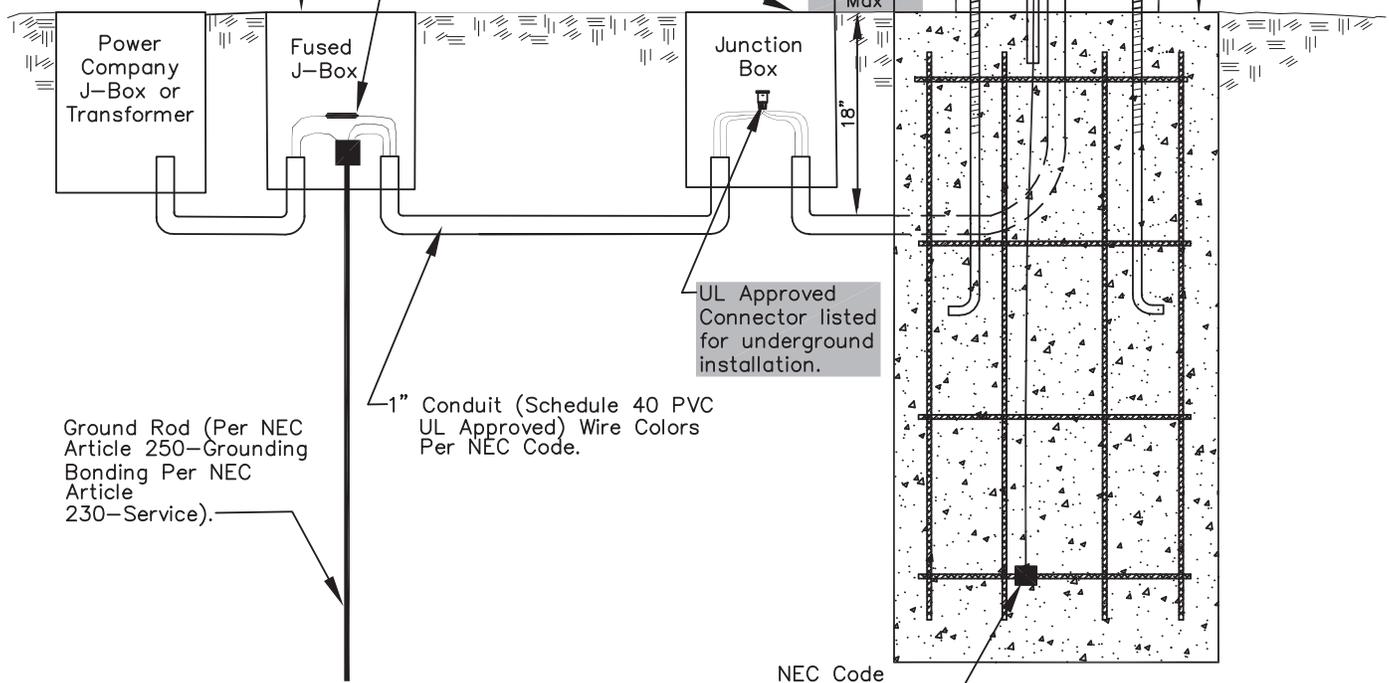
1/2" x 6" P.V.C.
Conduit Sleeve Fill
Top 2" With Silicone
Grout.

NOTE:
Additional J-Box (Pull Box)
Is Required When The Distance
Between The Street Light And
Fused Junction Box is 10 Feet or
Greater.

#10 Min. Wires from
Fuse Connector to
Fixture.

#6 Min. Wires from
Power
Source to Fuse
Connector.

Height 4" to 6"



UL Approved
Connector listed
for underground
installation.

Ground Rod (Per NEC
Article 250-Grounding
Bonding Per NEC
Article
230-Service).

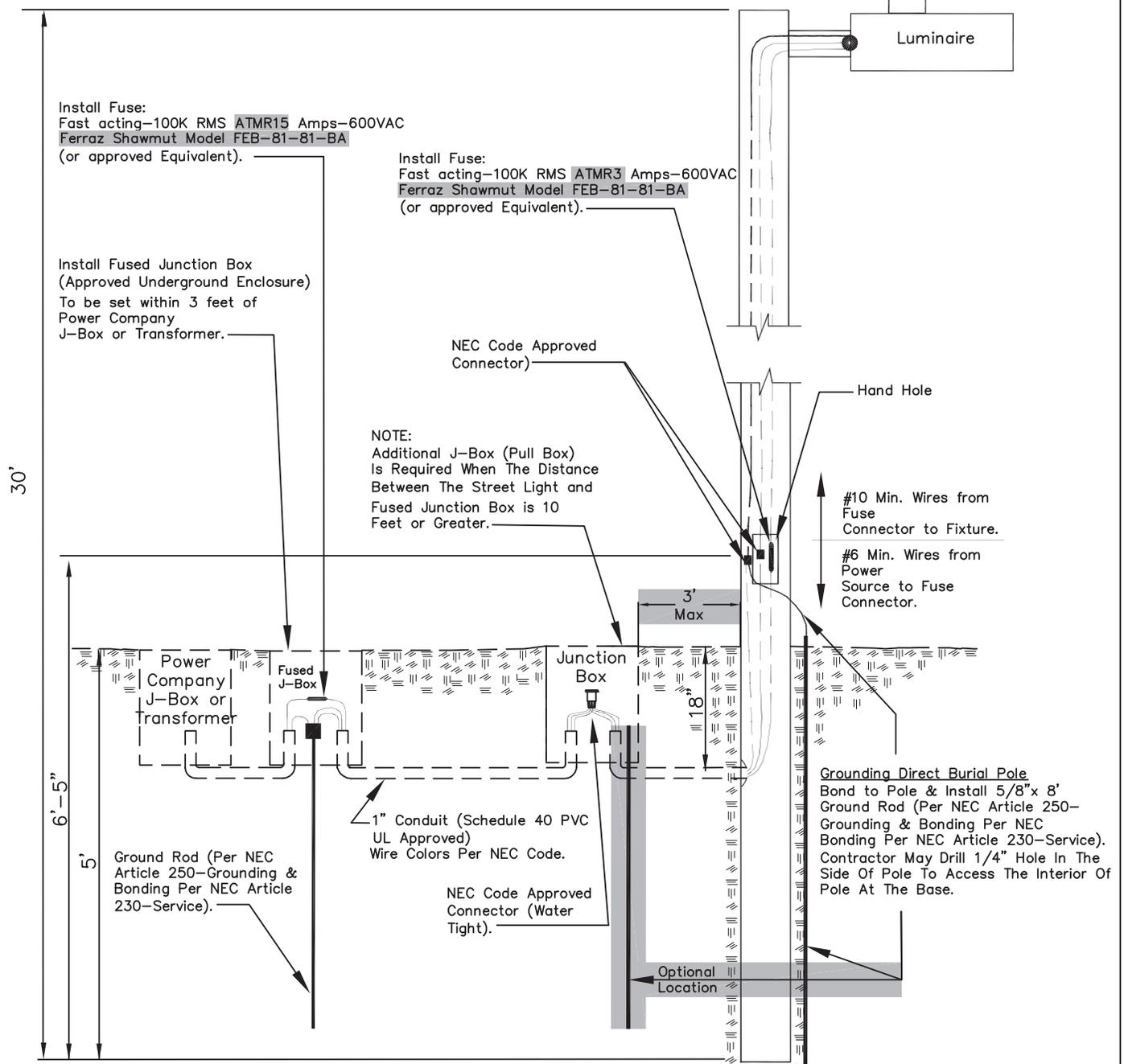
1" Conduit (Schedule 40 PVC
UL Approved) Wire Colors
Per NEC Code.

NEC Code
Approved
Grounding
Connector

NOTE
1. For Concrete Base Details See
ISPWC Standard Drawing SD-1109.

2. Ground Rod May Be Placed in Lieu
of Connection to Rebar Cage.

Photo Cell (Twist Lock type) Mark P.E. Control & Lamps with installation date.



Install Fuse:
Fast acting-100K RMS ATMR15 Amps-600VAC
Ferraz Shawmut Model FEB-81-81-BA
(or approved Equivalent).

Install Fuse:
Fast acting-100K RMS ATMR3 Amps-600VAC
Ferraz Shawmut Model FEB-81-81-BA
(or approved Equivalent).

Install Fused Junction Box
(Approved Underground Enclosure)
To be set within 3 feet of
Power Company
J-Box or Transformer.

NEC Code Approved
Connector)

NOTE:
Additional J-Box (Pull Box)
Is Required When The Distance
Between The Street Light and
Fused Junction Box is 10
Feet or Greater.

#10 Min. Wires from
Fuse
Connector to Fixture.
#6 Min. Wires from
Power
Source to Fuse
Connector.

30'

Power
Company
J-Box or
Transformer

Fused
J-Box

Ground Rod (Per NEC
Article 250-Grounding &
Bonding Per NEC Article
230-Service).

1" Conduit (Schedule 40 PVC
UL Approved)
Wire Colors Per NEC Code.

NEC Code Approved
Connector (Water
Tight).

Grounding Direct Burial Pole
Bond to Pole & Install 5/8" x 8'
Ground Rod (Per NEC Article 250-
Grounding & Bonding Per NEC
Bonding Per NEC Article 230-Service).
Contractor May Drill 1/4" Hole In The
Side Of Pole To Access The Interior Of
Pole At The Base.

6'-5"

5'

3'
Max

18"

Optional
Location

Not to Scale



FUSED "IN-LINE" TYPE WIRE CONNECTOR
SET SCREW TYPE ONLY

NOTES:

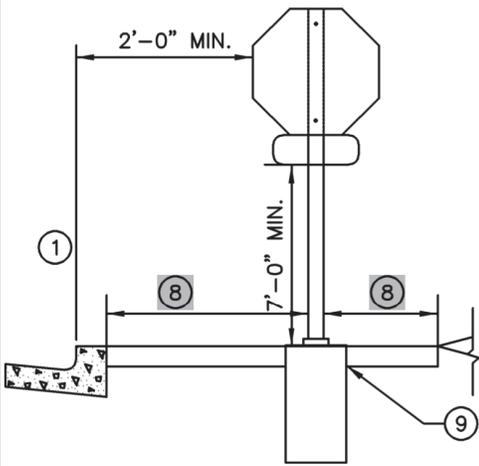
- (1) THE CONTRACTOR SHALL VERIFY LINE VOLTAGE PRIOR TO CONNECTING WIRE CONNECTORS.
- (2) CONTRACTOR SHALL CONNECT CONDUCTOR FROM THE WIRE CONNECTOR TO NEW LUMINAIRE WITH NO. 10 AWG. TYPE THW. 600V INSULATED WIRE.
- (3) ALL CONDUCTORS TO BE COPPER UNLESS OTHERWISE SPECIFIED.

2020

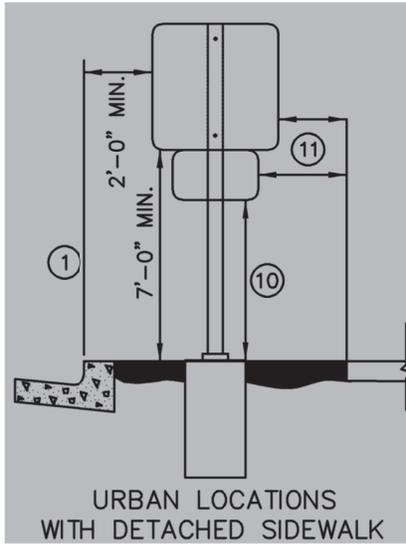
CITY
OF
TWIN FALLS

STREET LIGHT INSTALLATION
25' STANDARD DIRECT BURIAL

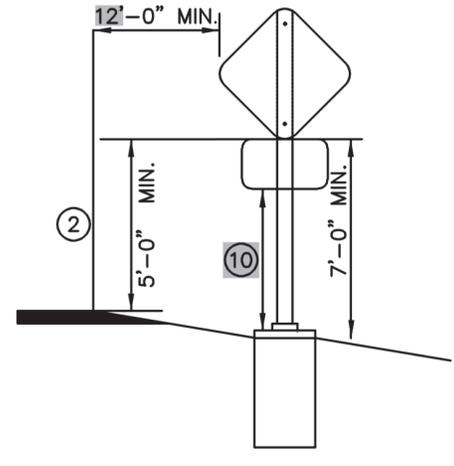
STANDARD DRAWING
NO. **TFSD-1119**



URBAN LOCATIONS
WITH ATTACHED SIDEWALK

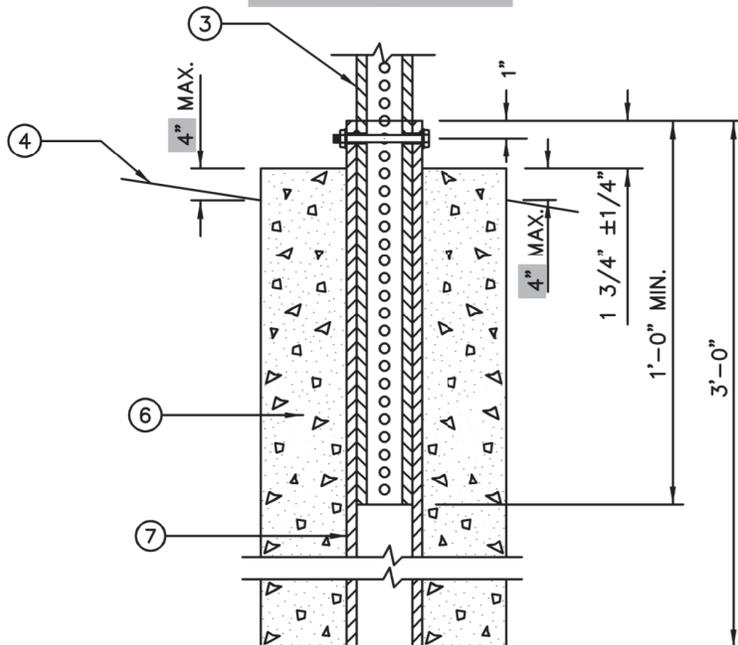
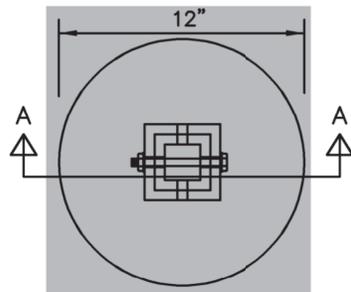


URBAN LOCATIONS
WITH DETACHED SIDEWALK



RURAL LOCATIONS

TYPICAL INSTALLATION FOR SIGNS



SECTION AA

TYPE E-1

SIGN POST INSTALLATION DETAILS
WITH ONE PIECE ANCHOR POST

LEGEND

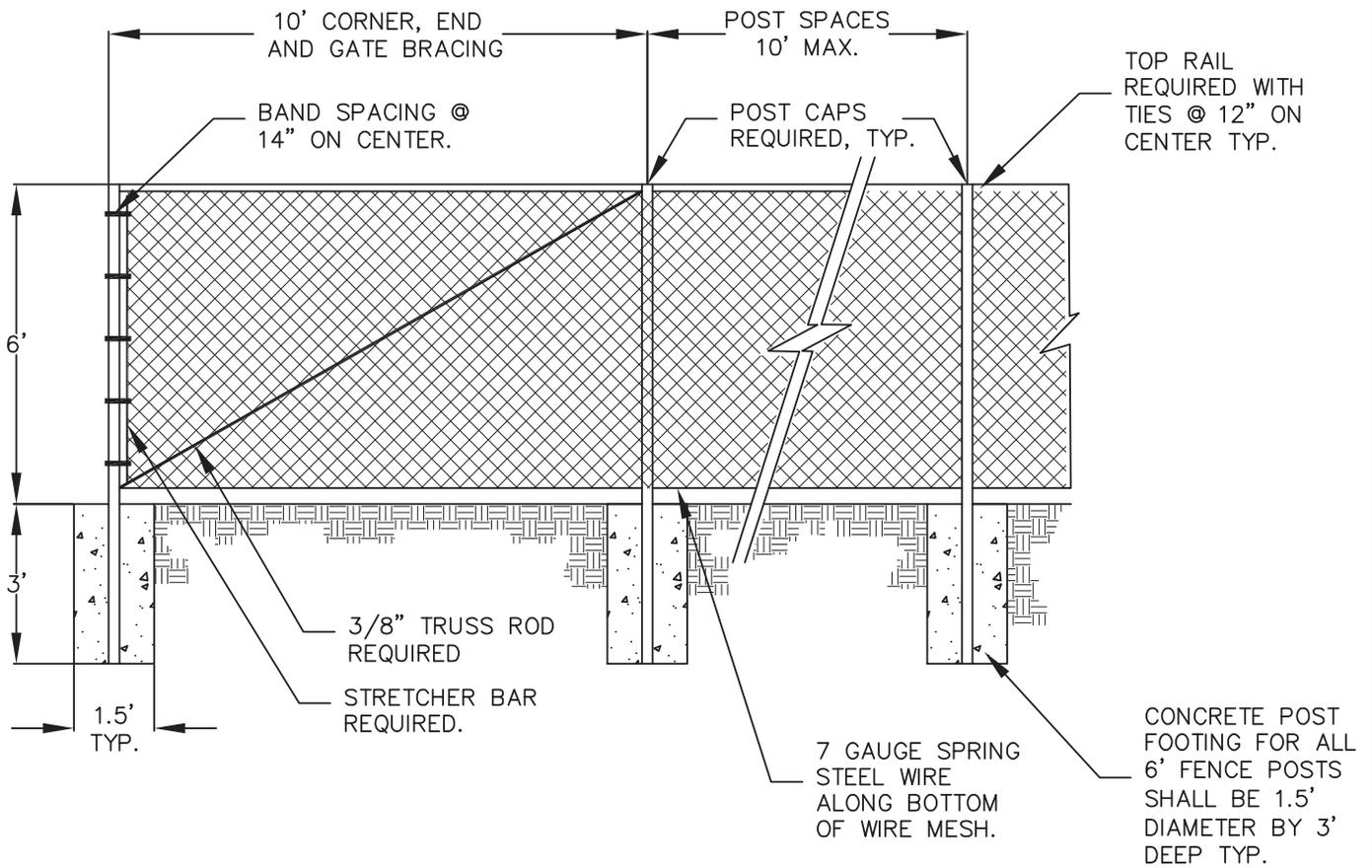
- ① FACE OF CURB.
- ② EDGE OF ROADWAY.
- ③ TYPE E-1 SIGN POST.
2" x 2" PERFORATED SQUARE TUBING.
12 GAUGE (0.105" WALL THICKNESS).
2.416 LB./FT. WEIGHT.
- ④ GROUND LINE.
- ⑤ 3/8" x 3" HEX HEAD BOLT
W/LOCKNUT & 2 FLAT WASHERS.
- ⑥ CLASS 3000 psi CONCRETE.
- ⑦ TYPE E-1 ANCHOR POST.
2 1/2" x 2 1/2" SQUARE TUBING.
3/16" WALL THICKNESS
NO PERFORATIONS.
5.59 LB./FT. WEIGHT.
- ⑧ A MINIMUM 4' WIDE SIDEWALK PATH
MUST BE MAINTAINED ON EITHER SIDE
OF ALL SIGNS FOR ADA ACCESS.
- ⑨ INSTALL 1/2" JOINT MATERIAL AROUND
FOUNDATIONS PERIMETER.
- ⑩ THE HEIGHT TO THE BOTTOM OF A
SECONDARY SIGN MOUNTED BELOW
ANOTHER SIGN MAY BE 1 FOOT LESS
THAN THE OTHER MINIMUM HEIGHTS
SPECIFIED.
- ⑪ WHEN THE HEIGHT TO THE BOTTOM
OF A SIGN IS LESS THAN 7', SIGNS
SHALL NOT PROTRUDE INTO THE
SIDEWALK UNLESS OTHERWISE
APPROVED BY THE CITY.

2020

CITY
OF
TWIN FALLS

SIGN
INSTALLATION

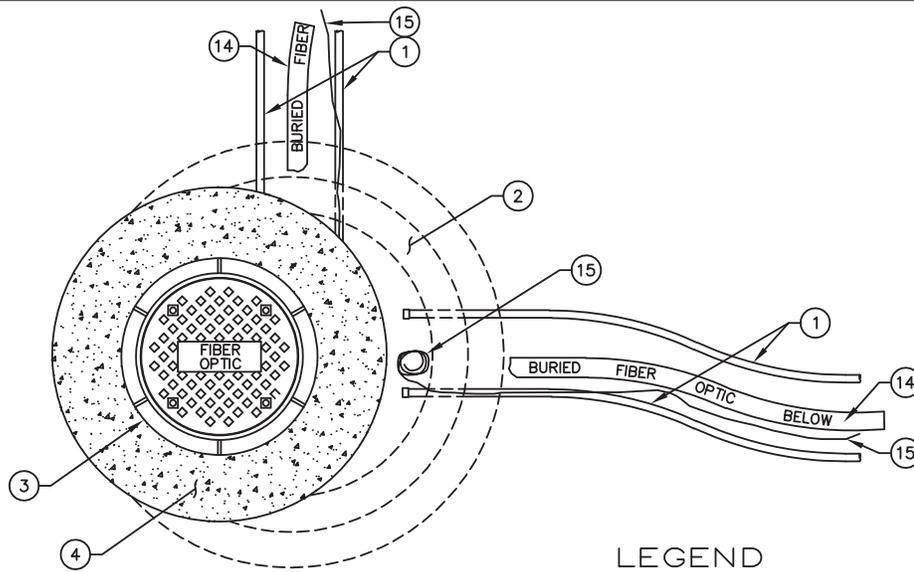
STANDARD DRAWING
NO. TFSD-1130



NOTES:

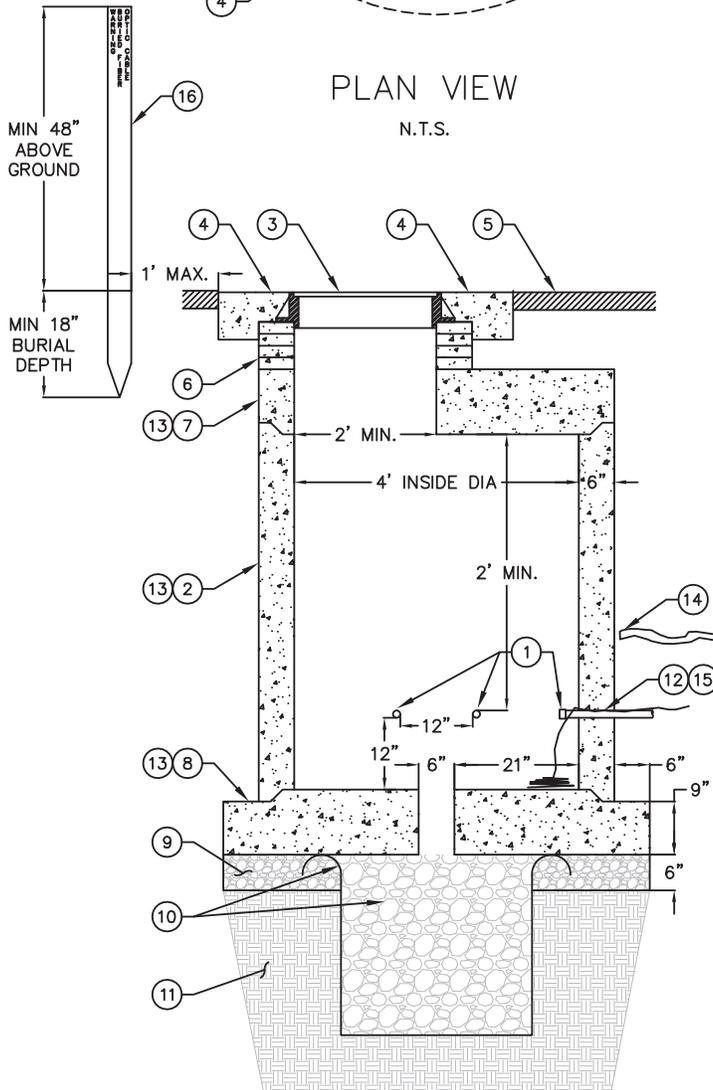
THE FENCE SHALL CONFORM TO THE STATE OF IDAHO STANDARD SPECIFICATIONS 610 AND 708.13, AND STANDARD DWG. F-2-D EXCEPT FOR THE FOLLOWING CHANGES AND CLARIFICATIONS:

1. THE FENCE FABRIC SHALL BE 9 GAUGE 2" DIAMOND WIRE MESH WITH A MINIMUM OF 2 OZ. PER SQ. FT. OF ZINC COATING AND VINYL PRIVACY SLATS, FULL HEIGHT.
2. THE FENCE SHALL HAVE A TOP AND BOTTOM RAIL THAT IS CLASS 1 SCHEDULE 40 1.660 IN. (1 5/8") DIA. O.D. GALVANIZED STEEL.
3. A TRUSS ROD SHALL BE PROVIDED IN ALL END SECTIONS AND CHANGES IN HEIGHT OF FENCE.
4. WIRE TIES SHALL BE USED EVERY 12" ALONG THE TOP RAIL AND ON ALL POSTS. THE TIES SHALL BE 11 1/2 GA. STEEL.
5. END AND BRACE POSTS SHALL BE CLASS 1 SCHEDULE 40 2.375 IN. (2 3/8") DIA. O.D. GALVANIZED STEEL.
6. LINE POSTS SHALL BE CLASS 1 SCHEDULE 40 1.900 IN. (1 7/8") DIA. O.D. GALVANIZED STEEL.
7. TENSION BARS, TRUSS RODS, POST CAPS, EYE-TOP CAPS, AND ALL HARDWARE ITEMS SHALL BE USED AS PER STATE STANDARDS.
8. THE BRACE RAIL MAY BE USED FOR THE TOP RAIL.
9. SUBMITTALS OF SHOP DRAWINGS FOR GATES SHOWING ALL BRACING AND HARDWARE ARE REQUIRED WITH BID.
10. THE DIAMETER AND DEPTH OF POST HOLES IN ROCK SHALL BE DETERMINED BY THE ENGINEER.



PLAN VIEW

N.T.S.



ELEVATION VIEW

N.T.S.

LEGEND

- ① DUAL 1.25" FIBER OPTIC CONDUITS; CAP ENDS INSIDE MANHOLE. MINIMUM BEND RADIUS IS 5 FEET, BUT SHALL NOT BE LESS THAN MANUFACTURER'S RECOMMENDATIONS.
- ② TRAFFIC RATED (H-20) PRECAST CONCRETE MANHOLE.
- ③ STANDARD MANHOLE COVER AND FRAME; SEE TFSD-507.
- ④ MANHOLE COLLAR; SEE TFSD-508.
- ⑤ REPLACEMENT SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AC SHOWN).
- ⑥ GRADE RINGS GROUT WATERTIGHT IN PLACE, NOT TO EXCEED 12" FROM FINISHED SURFACE TO TOP OF SLAB.
- ⑦ REINFORCED CONCRETE REDUCER SLAB.
- ⑧ PRECAST OR CAST-IN-PLACE MANHOLE BASE.
- ⑨ TYPE 1 CRUSHED AGGREGATE COMPACTED TO 95% ASTM D1557.
- ⑩ 3" UNCRUSHED DRAIN ROCK WITH GEOTEXTILE FABRIC (4 CF).
- ⑪ UNDISTURBED NATIVE SOIL.
- ⑫ CORE DRILL AND GROUT CONDUIT IN PLACE.
- ⑬ REBAR NOT SHOWN. PROVIDE REBAR TO ACCOMMODATE TRAFFIC LOADING.
- ⑭ MARKING TAPE TO BE 12" ABOVE TOP OF CONDUITS.
- ⑮ TRACER WIRE. COIL MIN. 20' INSIDE MANHOLE.
- ⑯ FIBER OPTIC MARKER TO BE EITHER 1) ORANGE PRO-MARK PM-301 WITH BURIED FIBER OPTIC CABLE DECAL OR APPROVED EQUIVALENT OR 2) 72" TRIVIEW FIBER OPTIC MARKER POST WITH EM6300 GROUNDED LOCATE PLATE OR APPROVED EQUIVALENT. COORDINATE WITH CITY OF TWIN FALLS INFORMATION TECHNOLOGY DEPARTMENT TO DETERMINE WHICH MARKER IS REQUIRED AND LOCATIONS OF MARKERS.

NOTES

- (A) PROPERLY ALIGN ALL INTERIOR JOINTS.
- (B) ALL JOINTS TO BE SEALED WITH GROUT.