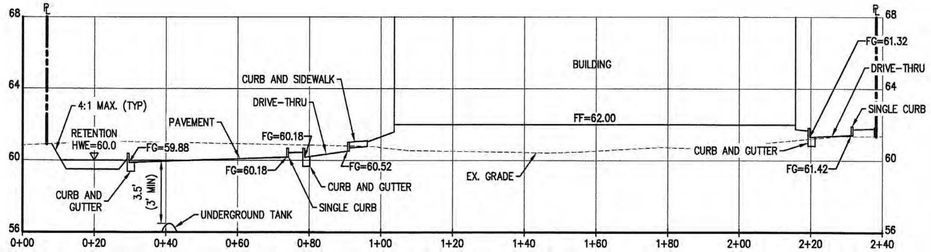
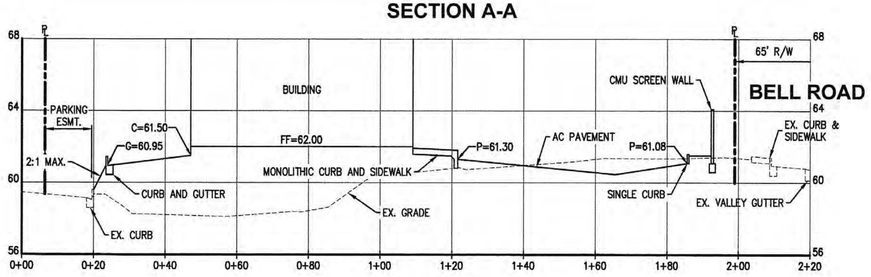
CROSS SECTIONS & DETAILS



SECTION A-A



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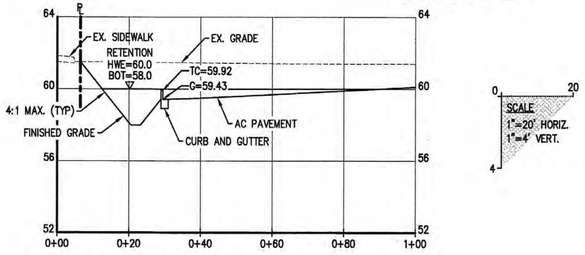

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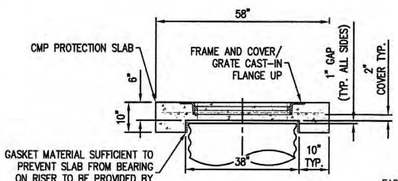
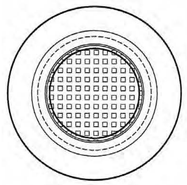


ELEVATION VIEW (36" RISER)
(FLUSH MOUNTED)



PLAN VIEW
(GRATED CASTING)
30"Ø HS25 LOAD RATED

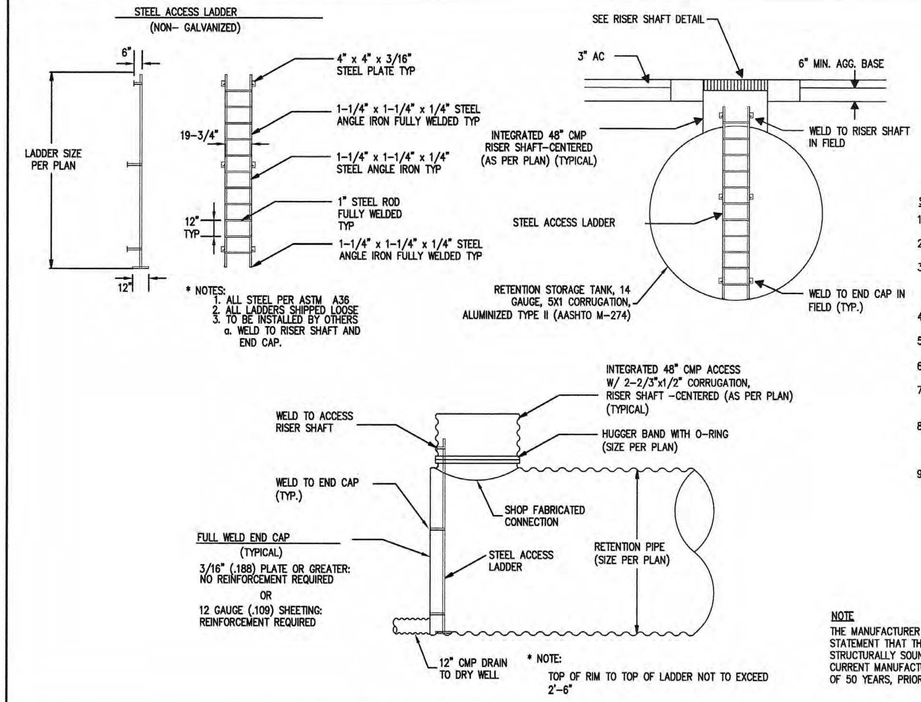
FABRICATION NOTES:

1. CONCRETE STRENGTH = 4,000 psi
2. REINFORCING STEEL – ASTM A615, GRADE 60, OR EQUIVALENT WELDED WIRE FABRIC.
3. NICE LIGHT BROOM FINISH FOR UNITS W/ CAST-IN FRAME AND COVER
4. LIFTERS IN SIDE FOR UNITS W/ CAST-IN FRAME AND COVER AND LIFTERS IN TOP SLAB FOR UNITS W/ SEPARATE COVER

GENERAL NOTES:

1. DESIGN LOAD HS20/HS25
2. EARTH COVER = 1' MAX
3. RISER CAP MUST BE ADEQUATELY SUPPORTED WITH PROPER BEDDING AND BEARING PRESSURE OF 3110 PSF AS TO NOT TRANSFER LOADS ONTO RISER.
4. HEAVY PICK WEIGHT = 2,900 LBS

CMP RISER DETAIL | 2



STORAGE TANK NOTES

1. C.M.P. SHALL BE INSTALLED PER MAG SPECIFICATION NO. 621
2. EXCAVATION, BEDDING AND BACKFILL SHALL BE PERFORMED PER MAG SPECIFICATION NO. 601
3. ALL MATERIALS SHALL BE PER MAG SPECIFICATION NO. 621, 771 & 760 OR THE MANUFACTURE'S SPECIFICATIONS; WHICHEVER REQUIREMENTS ARE THE GREATER
4. ALL JOINTS SHALL BE WATERTIGHT HUGGER BAND WITH O-RING GASKET
5. MINIMUM COVER OVER TOP OF TANKS WILL BE THREE FEET (3) IN ALL AREAS SUBJECT TO VEHICULAR TRAFFIC.
6. ALL APPURTANCES SHALL BE SHOP FABRICATED AND INSTALLED. NO PERFORATION WILL BE ALLOWED IN PIPE.
7. CMP SPECIFICATIONS WILL BE PER AASHTO M 36 CORRUGATED METAL PIPE AND AASHTO M 218 GALVANIZED SHEETING.
8. BEDDING AND BACK FILL PER MAG SPECIFICATIONS SEC. 601, TYPE I COMPACTION. USE CONSTRUCTION METHODS AND EQUIPMENT WHICH WILL NOT DAMAGE OR OVERLOAD THE CMP DURING CONSTRUCTION.
9. THE ACCESS SHALL INCLUDE A FIXED LADDER, ANCHORED TO THE END PLATE & RISER (IF NEEDED) OF THE STORAGE TANK.
   a. THE STRUCTURAL INTEGRITY OF THE INSTALLATION OF EACH LADDER MUST BE CERTIFIED BY A STRUCTURAL ENGINEER OR MANUFACTURER

NOTE

THE MANUFACTURER SHALL CERTIFY IN A SEPARATE SIGNED AND SEALED WRITTEN STATEMENT THAT THE PROPOSED COMPLETE UNDERGROUND RETENTION SYSTEM IS STRUCTURALLY SOUND AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE CURRENT MANUFACTURER SPECIFICATIONS AND ALSO HAS A DESIGN LIFE SPAN OF 50 YEARS, PRIOR TO INSTALLATION, OF SAID STRUCTURE.

120"Ø UNDERGROUND DETENTION TANK DETAIL | 1

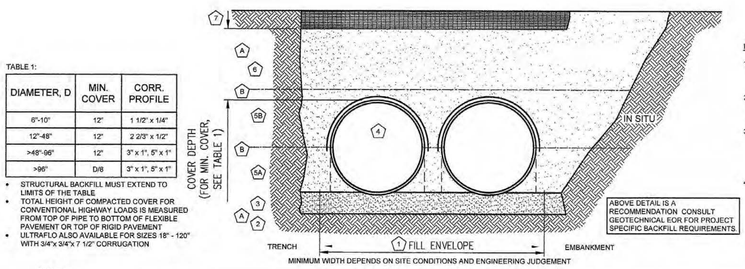


TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
8'-10"	12"	1 1/2" x 1/4"
12'-48"	12"	2 2/3" x 1/2"
>48'-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT
- ULTRAFLO ALSO AVAILABLE FOR SIZES 18" - 120" WITH 3/4"x 3/4"x 7 1/2" CORRUGATION

INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. BACKFILL USING CONTROLLED LOW-STRENGTH MATERIAL (CLSM, "FLASH FILL" OR "FLOWABLE FILL") MAY BE USED WHEN THE SPACING BETWEEN THE PIPES WILL NOT ALLOW FOR PLACEMENT AND ADEQUATE COMPACTION OF THE BACKFILL. CONTACT CONTECH FOR FURTHER EVALUATION.
4. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2:

CMP DETENTION AND CMP DRAINAGE STANDARD BACKFILL SPECIFICATIONS

	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION	
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16" PIPE > 12", 1.50 + 12"	MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	**AASHTO 26.5.2** OR PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.	
3	BEDDING	**AASHTO M 43: 3, 357, 4, 467, 5, 56, 57** (APPROVED REGIONAL EQUIVALENTS INCLUDE CA-7)	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE FOUNDATION SOILS CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1	
4	CORRUGATED METAL PIPE			
5A	CRITICAL BACKFILL	**AASHTO M 145: A-1, A-2, A-3** *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A THREE LIFT (24") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING	
5B	BACKFILL	**AASHTO M 145: A-1, A-2, A-3**	WELL GRADED GRANULAR MATERIAL WHICH MAY CONTAIN SMALL AMOUNTS OF SILT OR CLAY AND MAXIMUM PARTICLE SIZE OF 3" (PER AASHTO 26.3.8.1 AND 12.4-1.3).	
B	COVER MATERIAL	UP TO MIN. COVER - SEE 5A AND 5B ABOVE ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROAD BASE MATERIAL WITHIN MIN COVER LIMITS	
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.	
A	OPTIONAL SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION	
B	OPTIONAL GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.	

MANUFACTURER RECOMMENDED BACKFILL
NOT TO SCALE

CMP TANK MANUFACTURER RECOMMENDED BACKFILL DETAIL | 3

Registered Professional Engineer (Civil)
CERTIFICATE NO.
33981
WADE E. COOKE
Date Signed 11/27/24
ARIZONA, U.S.A.

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GLENDALE, ARIZONA

DATE:

REVISIONS:

TITLE:
CROSS SECTIONS & DETAILS

DATE: 11/27/2024

PROJ. # : 2082

C-4

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DSD PROJECT # 222005