GENERAL NOTES

STRUCTURE EXCAVATION AND BACKFILL SHALL BE AS SHOWN ON THE PLANS.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M213.

GRADE 60 REINFORCING STEEL IS REQUIRED

ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED.

(N) DENOTES NON COATED REINFORCING STEEL

CONCRETE COLOR FOR ALL MSE BLOCK SHALL BE DARK BROWN COLOR NO. 30108.

STRUCTURAL CONCRETE EXPOSED TO SOIL SHALL CONFORM TO CEMENTITIOUS MATERIALS REQUIREMENTS CLASS 2, CORRESPONDING TO SULFATE EXPOSURE CLASS 2.

THE TOP OF LEVELING PAD ELEVATIONS SHOWN FOR MSE WALLS ARE THE HIGHEST ALLOWABLE ELEVATIONS. IN NO CASE SHALL THE TOP OF THE LEVELING PAD BE LESS THAN 1'-6" FROM FINISHED GRADE AT THE FRONT FACE.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER.

l	BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11	
	SPLICE LENGTH FOR CLASS B CONCRETE	1'-3''	1'-7''	2'-6''	3'-5''	4'-6''	5'-8''	7'-2''	8'-10''	
	SPLICE LENGTH FOR CLASS D CONCRETE	1'-3''	1'-7''	2'-5''	2'-10''	3'-8''	4'-8''	5'-11''	7'-3''	
	WHEN THE CONTRACTOR EL Black reinforcing bars,	ECTS THE M	TO SUBS INIMUM	TITUTE LAP SP	EPOXY LICE S	' COATE Hall Be	D REIN E AS DE	FORCEM SCRIBE	ENT FOR D ABOVE.	
	THE CONTRACTOR SHALL B EXCAVATION DURING CONS	E RESP TRUCTI	ONSIBLE DN.	FOR 1	HE STA	ABILITY	OF THE	E STRU(TURE AN	D
	STATIONS, ELEVATIONS, AND FROM A RECENT FIELD SUM DIMENSIONS IN THE FIELD	D DIMEN RVEY. BEFOR	ISIONS (The Con E ordef	CONTAIN ITRACTI RING OF	NED IN DR SHAI R FABRI	THESE LL VERI CATING	PLANS FY ALL ANY M	ARE CA DEPENI ATERIAL	_CULATED DENT	
	THE INFORMATION SHOWN (UNDERGROUND UTILITIES 19 CONTRACTOR IS RESPONSIE LOCATION OF UNDERGROUN(THERETO.	ON THE S NOT BLE FOF D UTILI	SE PLAN GUARAN R MAKIN TIES AS	NS CON TEED T G HIS S MAY	CERNING D BE A DWN DE BE NEC	G THE CCURAT TERMIN ESSARY	TYPE AN E OR AL ATION A TO AV	ND LOCA L INCL AS TO 1 OID DAM	TION OF USIVE. TH HE TYPE MAGE	HE AND
	THE CONTRACTOR SHALL C 1-800-922-1987 AT LEAST TO ANY EXCAVATION OR O	ONTACT 2 DAY THER E	THE U S (NOT ARTHWO	TILITY INCLUD RK.	NOTIFI DING TH	CATION IE DAY	CENTER OF NOT	R OF CC IFICATI	ILORADO A DN) PRIOR	АТ ?
	WORKING DRAWINGS SHALL Coping, geomembrane and	BE SU Down	BMITTED DRAIN) TO TI PRIOR	HE PRO TO FABI	JECT EN RICATIO	NGINEER N.	FOR T	HE PRECA	чSТ
	THE STATIONS AND OFF SE AND REFERENCE WALL STA	ETS SH TIONS	OWN ARI AS SHOV	E ALON WN ON	G WALL The Co	LAYOU INTRACT	T LINE PLANS			
	FOR LOCATION AND ALIGNM CONTRACT WALLS AND REL	MENT OF ATED A	- ADJAC AS-BUILT	ENT WA Plan.	ALLS, OF	R STRUG	TURES	SEE DT	HER	
	IF MANHOLES, PILES, OR DR Shop drawings.	ROP INL	ets are	E PRES	ENT, TH	EY SHA	LL BE C	DETAILE	D IN THE	
	IF PILES ARE LOCATED WI BE DRIVEN PRIOR TO CONS METHOD TO PROTECT THE	THIN T STRUCT STRUC	HE REIN ION OF IURE, WH	FORCED REINFO HICH IS) EARTH RCED E ACCEF	H VOLUN ARTH O YTABLE	ME, THEY R GRS ' TO THE	′SHALL WALL U	NLESS A	

ENGINEER, AND IS PROPOSED AND APPROVED IN WRITING BY THE ENGINEER.

CONTRACTOR SHALL COORDINATE IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN THE REINFORCED EARTH VOLUME INTERFER WITH THE NORMAL PLACEMENT OF REINFORCMENT AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINEWHAT COURSE OF ACTION SHOULD BE TAKEN.

THE WALL CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFONCING AND GEOMEMBRANE DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION.

THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING STORM WATER DRAINAGE IN VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNDFF IS TO BE CONTROLLED AND DISCHARGE AWAY FROM THE WALL AND REINFORCED BAKFILL FOR CONFORMING DRY CONDITION.

COMPACTION AND OPERATION EQUIPMENT SHALL BE KEPT A MINIMUM DISTANCE OF 3'-O" FROM BACK FACE OF GRS OR MSE WALLS. COMPACTION WITHIN 3'-O" OF GRS OR MSE WALLS SHALL BE ACHIEVED WITH AT LEAST THREE (3) PASSES OF LIGHTWEIGHT COMPACTION MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM. NO COMPACTION DENSITY TESTS SHALL BE TAKEN WITHIN THE 3 FT. ZONE.

IF STRUCTURES IN EXCESS OF 20' IN HEIGHT OCCURE, THE FINISHED GRADE IN FRONT OF THE WALL SHALL BE PLACED AND COMPACETED BEFORE WALL CONSTRUCTION EXCEEDSA HEIGHT OF 20'. FINISHED GRADE BACKFILL SHALL BE COMPACTED TO 95% OF THE ASTM D-698, METHODS 'C' OR 'D'. UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL MAKE AN INDEPENDENT REVIEW AND ANALYSIS OF ALL HANDLING, LOADING, LIFTING AND ERECTION. THE CONTRACTOR SHALL DEVISE AND EXCUTE PROJECT SPECIFIC PROCEDURES FOR HANDLING. LOADING AND LIFTING WHICH COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFTY LAWS, REGULATIONS AND REQUIRMENT AND ALL APPLICABLE CONTRACT REQUIREMENTS.

DESIGN CRITERIA

MECHANICALLY STABILIZED EARTH (MSE) OR GEOSYNTHETIC REINFORCED SOIL (GRS) WALL DESIGN CRITERIA:

- 1. MEET AASHTO LRFD AND/OR FHWA GRS ABUTMENT DESIGN METHOD FOR 75 YEARS DESIGN LIFE.
- MEET OSHA EXCAVATION OR 29 CFR 1926 (TYPE-A SOIL, TYPE-B SOIL, IN BETWEEN 2. TYPE A AND STABLE ROCK) REQUIREMENTS.
- MEET NO HYDROSTATIC PRESSURE ASSUMPTION WITH CLASS I BACKFILL AND 3. ASSOCIATED DRAINAGE DETAILS.
- 4. MEET TEST LEVEL TL-4 RAILING (TYPE 7 OR 10 WITH RAIL ANCHORING SLAB OR MICRO PILE CAP BEAM).
- MEET EXTREME EVENT I; NO ANALYSIS FOR SEISMIC PERFORMANCE ZONES (SPZ) 1-3; 5. EARTHQUAKE LOAD (EQ) RESISTANCE WALL DETAILS FOR IMPROVED SEISMIC PERFORMANCE AS STIPULATED IN WORKSHEETS ARE REQUIRED.
- 6. BOTH CORE WALLS (UNIFORM SOIL REINFORCEMENT LENGTH (RL) EQUALS 70% DESIGN HEIGHT (DH) AND CLASS I BACKFILL IN EXTENDED TRAPEZOIDAL RETAINED ZONE) AND TRUNCATED BASE WALLS (WITH MINIMUM RL EQUALS 45% DH OR 4 FEET) MEET A SINGLE GLOBAL FACTOR OF SAFETY (FS) OF 1.3 OR RESISTANCE FACTOR \$ EQUALS 0.75 WITH DETAILED BORING, SOIL CLASSIFICATION AND GEDTECHNICAL REPORT
- 7. PROVIDE APPLIED MAX FACTORED TOE STRESS AND MEET FOUNDATION BEARING PRESSURE (BP) REQUIREMENT.

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ENGINEER OF RECORD (EOR) MAY MODIFY WORKSHEETS IN PARTS OR WHOLE; HOWEVER THESE DESIGN CRITERIA AND SET OF DAMAGE AVOIDANCE DETAILS (DAD) REPRESENT CODT STRUCTURAL DESIGN POLICIES SHALL BE MAINTAINED AS MINIMUM REQUIREMENTS. DAD SHALL INCLUDE BUT NOT BE LIMITED TO COPING, RAIL ANCHOR SLAB/BEAM, WATERPROOFING MEMBRANE/DRAIN, TRUNCATED BASE EXCAVATION/BACKFILL, TOP MOST EXTENDED SOIL REINFORCEMENTS, PANEL JOINTS, CLOSE SPACED GRS, WIRE BASKET/WRAP AROUND, RSF/RSW AND CONCRETE LEVELING PAD/STEP/FRP STOPPER, ETC. LIVE LOAD SURCHARGE = 2'-0" OF SOIL VEHICULAR HORIZONTAL IMPACT = 10 KIP BACKFILL (CLASS 1) Ø = .34° UNIT WEIGHT OF SOIL = 125 PCF REINFORCED CONCRETE: UNIT WEIGHT OF CONCRETE = 150 PCF CONCRETE CLASS D (WALL): f'c = 4500 PSI REINFORCING STEEL: fy = 60,000 PSI ABBREVIATIONS USED RM1 = Quantities of Structure Backfill (Class 1) without Shoring (CY/LF) DH or z = Design Height (or Avg. height for qty. calculations) (ft.) = Depth of Reinforced Soil Foundation (ft.) DRSF = Quantity of Structure Excavation without Shoring (CY/LF) EM. Н = Height of Excavation at WallLayout Line (ft.) MRS = Quantitiy of Mechanical Reinforcement for Prescribed Soil Zone (CY/LF) PLG = Pay Length for Geomembrane (ft.) = Reinforcement Length (ft.) RI RSF = Quantities of Reinforced SoilFoundation (CY/LF)(Excavation, Reinforcement & Backfill) WRSF = Width of Reinforced SoilFoundation (ft.) = Bearing Pressure (TSF.) RP = Depth of Block or Total panel depth D DHWE = Design Height Water Elevation DRSF = Depth of RSF as Specified by Engineer DRSW = Depth of RSW = Soil Reinforcement Spacing RSF = Reinforced Soil Foundation (CY)(Excavation, Reinforcement & Backfill) RSW = Reinforced Soil Wrapper (SY)(Reinforcement) = Width of RSF as Specified by Engineer WRSF = Width of RSW = 3'-0" (Typ.) WRSW DH (Avg) = Average WallDesign Height = SPACED AT @ ROT = BOTTOM CLR = CLEAR CONT. = CONTINUOUS = CENTERLINE ЕĴМ = EXPANSION JOINT MATERIAL I B = POUND MAX = MAXIMUM MIN. = MINIMUM = POUNDS PER CUBIC FOOT PCF = STATION STA = TYPICAL TYP нма = HOT MIXED ASPHALT ABC = AGGREGATE BASE COURSE 03 BP = BP FOR 2:1 INFINITE SLOPE 03 BP = BP FUR 2:1 INFINITE SLUPE 04 BP = BP FOR 2:1 BROKEN SLOPE Le = LENGTH OF REINFORCEMENT IN RESISTING ZONE (FT) Tmax = APPLIED FACTORED LOAD IN REINFORCEMENT H sigmma = FACTORED HORIZONTAL STRESS DHu = DESIGN HEIGHT OF UPPER TIERED WALL DHI = DESIGN HEIGHT OF LOWER TIERED WALL 2... - LUDDED PEINEORCEME DEPTH Zu = UPPER REINFORCEMT DEPTH Z١ = LOWER REINFORCEMT DEPTH OS = OFFSF1 = ON CENTER DC ŌĎ = OUTSIDE DIAMETER = EXISTING SLOPE ANGLE = ANGLE_OF SLOPE TETA BETA Project No./Code GENERAL NOTES Project Number XXXXXXXXX WALL-X-XX-XX Structure Code XXXXXXXX Numbers WALL-X-XX-XX

Wall

Subset Sheets: WXX of XX

Sheet Number

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