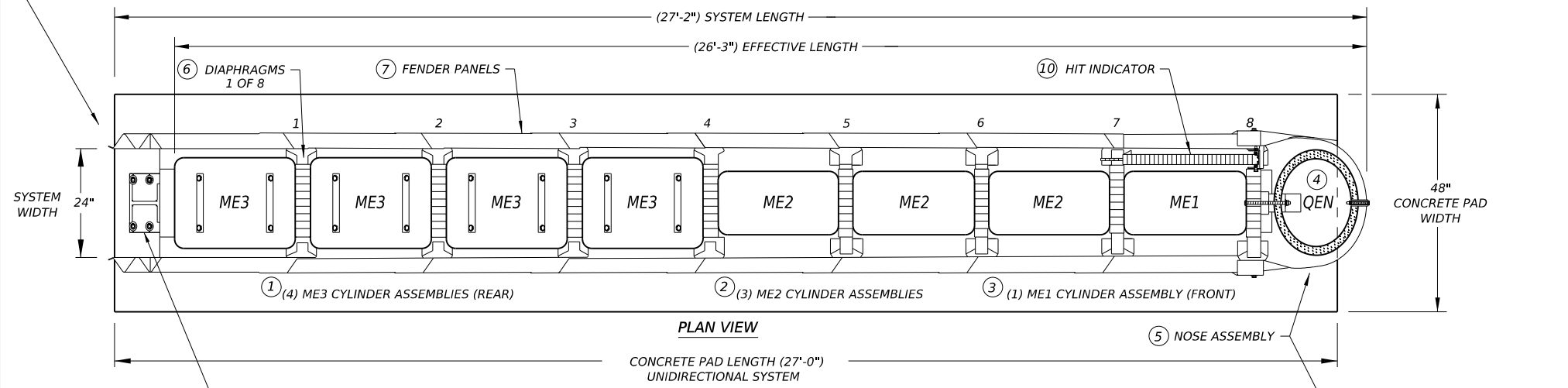


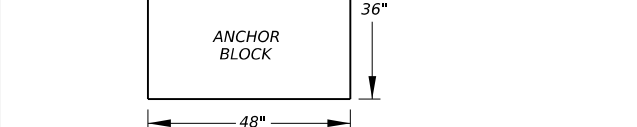
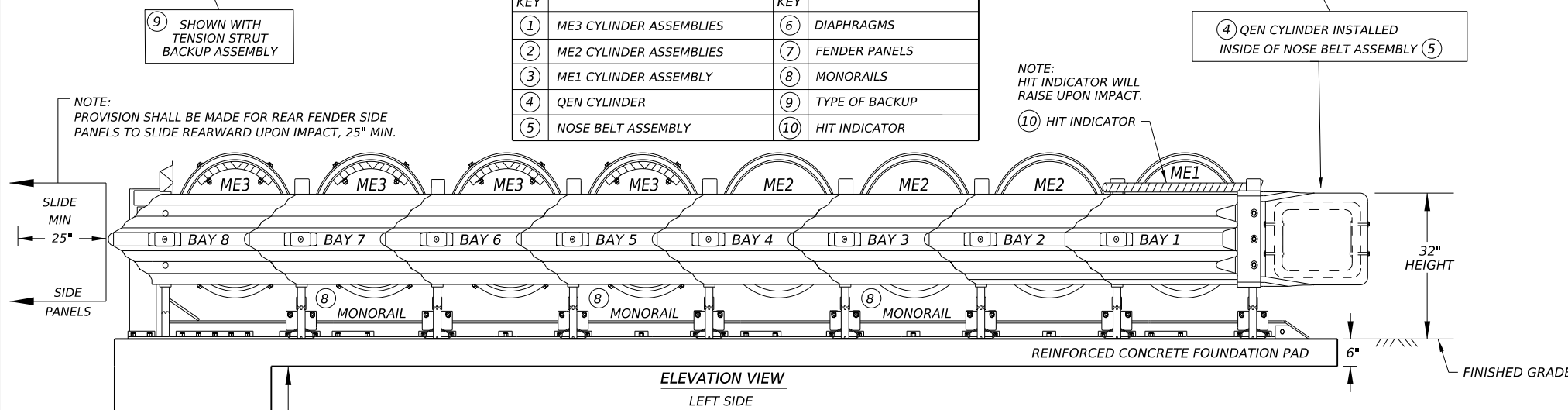
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TxDOT FOR ANY PURPOSE WHATSOEVER. TxDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

NOTE:
A TRANSITION MAY BE REQUIRED TO INSTALL THE QUADGUARD ELITE M10 TO THE OBJECT BEING SHIELDED.

QUADGUARD ELITE M10 24" WIDE (8 BAY) SYSTEM



KEY	KEY
① ME3 CYLINDER ASSEMBLIES	⑥ DIAPHRAGMS
② ME2 CYLINDER ASSEMBLIES	⑦ FENDER PANELS
③ ME1 CYLINDER ASSEMBLY	⑧ MONORAILS
④ QEN CYLINDER	⑨ TYPE OF BACKUP
⑤ NOSE BELT ASSEMBLY	⑩ HIT INDICATOR



BACKUP ASSEMBLY TYPES FOR SYSTEM TRANSITIONS

SEE GENERAL NOTE 10 FOR CLEARANCE LIMITATIONS

⑨ TENSION STRUT BACKUP

⑨ CONCRETE BACKUP

SYSTEM TRANSITIONS TYPES	
1	QUAD-BEAM TO CONCRETE SAFETY BARRIER
2	QUAD-BEAM TO CONCRETE BRIDGE RAIL
3	QUAD-BEAM TO CONCRETE END SHOE
4	QUAD-BEAM TO THRIE-BEAM RAIL
5	QUAD-BEAM TO W-BEAM RAIL

NOTE:
TRANSITION ASSEMBLIES FOR THE QUADGUARD ELITE M10 TO THRIE-BEAM OR W-BEAM FENCE REQUIRES I-BEAM POSTS:
ALL POSTS W6X8.5/9 I-BEAMS (78" LONG).

NOTE:
CONTACT THE MANUFACTURER WITH SITE SPECIFIC DATA (SSD) FOR THE CORRECT BACKUP ASSEMBLY AND TRANSITION PANELS OR SIDE PANELS USED FOR STANDARD AND BI-DIRECTIONAL INSTALLATIONS: AT DIVIDED-HIGHWAY MEDIANS OR UNDIVIDED ROADWAYS WHERE THE SYSTEM IS EXPOSED TO IMPACTS FROM ONE OR TWO DIFFERENT DIRECTIONS OF TRAFFIC FLOW.

NOTES:
CONTACT THE MANUFACTURER WITH SITE SPECIFIC DATA (SSD) FOR CONCRETE PAD AND ANCHOR BLOCK INSTALLATION REQUIREMENTS.

A MANUFACTURER'S DRAWING PACKAGE UNIQUE AND SPECIFIC FOR THE QUADGUARD ELITE M10 FIELD INSTALLATION AND INFORMATION REGARDING THE TYPE OF BACKUP ASSEMBLY REQUIRED FOR THE TRANSITION WILL BE PROVIDED BY THE MANUFACTURER TO THE ENGINEER AND INSTALLER.

6" REINFORCED CONCRETE PAD REQUIRES THE INSTALLATION OF AN ANCHOR BLOCK AS SHOWN ON THE MANUFACTURER'S DRAWING PACKAGE.

8" NON-REINFORCED CONCRETE PAD MAY NOT REQUIRE AN ANCHOR BLOCK, IF THE PAD IS INSTALLED AGAINST AN IMMOVABLE CONCRETE BACKUP.

CONCRETE PAD AND ANCHOR BLOCK COMBINATIONS SHALL BE CONFIRMED WITH THE MANUFACTURER BASED UPON SITE SPECIFIC DATA (SSD).

NOTE:
THE QUADGUARD ELITE M10 8-BAY, 24" WIDE - NARROW SYSTEM TESTED TO MASH TEST LEVEL 3.

TL-3 MODEL #	QM10024E	CYLINDER TYPES IN BAYS			
BAYS	8	TYPE-ME3	TYPE-ME2	TYPE-ME1	TYPE-QEN
DIAPHRAGMS	8	4	3	1	1
WIDTH	24"	REAR	FRONT		NOSE

GENERAL NOTES

- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY - ENERGY ABSORPTION INC. AT 1(888)323-6374.
- SEE THE RECENT QUADGUARD ELITE M10 PRODUCT DESCRIPTION ASSEMBLY MANUAL FOR IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS AND THE DRAWING PACKAGE FOR THE NARROW 24" SYSTEM BEFORE INSTALLING THE QUADGUARD ELITE M10 AT ANY GIVEN LOCATION.
- FOR BI-DIRECTIONAL TRAFFIC: THE LOCATION AND OR WIDTH OF THE QUADGUARD ELITE M10 IS RESTRICTED. AS BI-DIRECTIONAL TRAFFIC APPROACHES THE REAR OF THE QUADGUARD ELITE M10, THE QUADGUARD ELITE M10 SHOULD NOT EXTEND FURTHER INTO THE TRAFFIC-SIDE OF THE BARRIER THAN THE OBSTACLE. ANY TRANSITION INSTALLED MUST EITHER BE TANGENT TO BOTH QUADGUARD ELITE M10 AND OBSTACLE OR MUST ANGLE TOWARD FIELD SIDE OF THE BARRIER.
- SYSTEM TRANSITION: APPROPRIATE TRANSITION PANELS OR SIDE PANELS WILL BE REQUIRED FOR PROPER IMPACT PERFORMANCE. THE CORRECT PANEL(S) TO USE WILL DEPEND ON THE DIRECTION OF TRAFFIC FLOW AND WHAT TYPE OF BARRIER OR ROAD FEATURE THE QUADGUARD ELITE M10 SYSTEM IS SHIELDING. SEE THE QUADGUARD ELITE M10 PRODUCT DESCRIPTION & ASSEMBLY MANUAL FOR FURTHER DETAILS.
- COMPONENTS FOR THE QUADGUARD ELITE (M10) BACKUP AND REINFORCING DETAILS ARE SHOWN ON THE QUADGUARD ELITE M10 PRODUCT DESCRIPTION & ASSEMBLY MANUAL.
- CONCRETE PAD SHALL BE 6" MIN. REINFORCED 28MPa [4,000 PSI] (P.C.) OR 8" MIN. NON-REINFORCED 28MPa [4,000 PSI] CONCRETE ROADWAY MEASURING AT LEAST 12'-0" WIDE BY 50'-0" LONG. ANCHOR BLOCK IS NOT REQUIRED WHEN USING 8" CONCRETE PAD INSTALLED AGAINST AN IMMOVABLE STRUCTURE, E.G. CONCRETE WALL.
- IF THE CROSS-SLOPE VARIES MORE THAN 2% OVER THE LENGTH OF THE SYSTEM, THE CONCRETE PAD WILL REQUIRE LEVELING. MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
- THE INSTALLATION AREA SHOULD BE FREE OF CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE QUADGUARD ELITE M10 SYSTEM SHOULD BE INSTALLED APPROXIMATELY PARALLEL WITH THE BARRIER.
- FOR THE TENSION STRUT BACKUP THE DISTANCE BETWEEN THE BACK OF BACKUP AND THE BARRIER WALL SHOULD NOT EXCEED 7" IN ANY CASE.
- TxDOT HAS ONLY APPROVED THE 24" WIDE QUADGUARD ELITE M10 SYSTEM. THE QUADGUARD ELITE M10 PRODUCT DESCRIPTION AND ASSEMBLY MANUAL INCLUDES SYSTEM WIDTH OF 24". ONLY THE 24" SYSTEM IS ALLOWED TO BE INSTALLED ON TEXAS ROADWAYS.

FOUNDATION & ANCHORING REQUIREMENTS	
FOUNDATION TYPES: A, B, C, & D	
FOUNDATION TYPE:A	REINFORCED CONCRETE PAD OR ROADWAY
FOUNDATION:	6" MINIMUM DEPTH (P.C.C.)
ANCHORAGE:	7" STUDS EMBEDDED 5 1/2" - APPROVED ADHESIVE
FOUNDATION TYPE:B	ASPHALT OVER P.C.C.
FOUNDATION:	3" MIN. (A.C.) OVER 3" MIN. (P.C.C.)
ANCHORAGE:	18" THREADED ROD EMBEDDED 16 1/2" - APPROVED ADHESIVE
FOUNDATION TYPE:C	ASPHALT OVER SUBBASE
FOUNDATION:	6" MIN. (A.C.) OVER 6" MIN. (C.S.)
ANCHORAGE:	18" THREADED ROD EMBEDDED 16 1/2" - APPROVED ADHESIVE
FOUNDATION TYPE:D	ASPHALT ONLY
FOUNDATION:	8" MIN. (A.C.)
ANCHORAGE:	18" THREADED ROD EMBEDDED 16 1/2" - APPROVED ADHESIVE

KEY:
ASPHALT CONCRETE (A.C.)
COMPACTED SUBBASE (C.S.)
PORTLAND CEMENT CONCRETE (P.C.C.)

NOTE: SEE TRINITY'S PRODUCT DESCRIPTION ASSEMBLY MANUAL FOR THE APPROVED ADHESIVE.

IF THE UNIT IS ANCHORED TO ASPHALTIC CONCRETE, IT SHOULD BE RELOCATED TO FRESH, UNDISTURBED ASPHALT AND RE-ANCHORED AFTER EACH IMPACT TO ENSURE ADEQUATE FUTURE PERFORMANCE.

TENSION STRUT BACKUP MAY BE USED IN CONSTRUCTION ZONES ON ASPHALT CONCRETE (A.C.) FOR TEMPORARY USE ONLY.

Texas Department of Transportation Design Division Standard

TRINITY HIGHWAY ENERGY ABSORPTION QUADGUARD ELITE M10 (MASH TL-3) QGELITE (M10) (N) -20

FILE: qgelite10n20.dgn	DN: TxDOT	CK: KM	DW: VP	CK: AG
© TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY		SHEET NO.	

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE QUADGUARD ELITE M10 SYSTEM AND IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

LOW MAINTENANCE

DATE:
FILE: