



### MISCELLANEOUS QUANTITIES

1 LS	MONITORING VIBRATIONS (STRUCTURES)
1 LS	MONITORING VIBRATIONS (SANITARY SEWERS)
1 LS	STRUCTURES, REM (B01 OF 63021)
1 LS	STRUCTURES, REM *
4 CYD	EXCAVATION, FDN **
1570 CYD	BACKFILL, STRUCTURE, CIP
569 CYD	EMBANKMENT, CIP
610 CYD	NON HAZ CONTAMINATED MATERIAL HANDLING AND DISPOSAL, LM
400 TON	RIPRAP, HEAVY, SPECIAL
1 LS	CONFFERDAMS, LEFT IN PLACE
150 SYD	CONC. SURFACE COATING

\* STRUCTURE, REM INCLUDED: REMOVAL OF EXISTING CORRUGATED PIPE-CULVERT, REMOVAL EXISTING GUARDRAIL, EXCAVATING, FDN FOR CULVERT REMOVAL.  
 \*\* THIS QUANTITY FOR EXCAVATION FOUNDATION FOR PROPER INSTALLATION OF PROPOSED COFFERDAMS.

### NOTES:

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES HS25 LOADING. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE REMOVAL OF THE EXISTING STRUCTURE, SLOPEWALLS AND GABIONS IS INCLUDED IN THE PAY ITEM, "STRUCTURE, REM". SEE "STRUCTURES REMOVAL SEQUENCE" ON SHEET.

REMOVAL OF THE EXISTING SUBSTRUCTURE UNITS SHALL BE ISOLATED FROM THE WATERWAY USING TEMPORARY STEEL SHEET PILING. TEMPORARY SHEETING FOR THE REMOVAL SHALL ADHERE TO THE SAME REQUIREMENTS FOR CONSTRUCTION AND DE-WATERING AS THE COFFERDAM. TEMPORARY SHEETING SHALL BE CUT OFF 1'-0" BELOW FINISH GRADE AND SHALL NOT INTERFERE WITH PROPOSED CONSTRUCTION. ALL COST ASSOCIATED WITH THE TEMPORARY SHEETING IS INCLUDING IN THE REMOVAL ITEMS.

DURING WORK ON THE EXISTING AND PROPOSED RETAINING WALLS CASE SHALL BE TAKEN TO PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY. THE CONTRACTOR SHALL PROPOSE A SYSTEM FOR PROTECTION OF THE WATERWAY & SUBMIT IT TO THE ENGINEER FOR APPROVAL. PAID FOR AS "SEDIMENTATION CONTROL". SEE SPECIAL PROVISION.

PAYMENT FOR FALSE DECKING SHALL BE BASED ON THE AREA OF THE EXISTING ARCH BARREL OVER THE WATERWAY REGARDLESS OF THE SIZE OF THE BARGE OR PLATFORM USED. THE CONTRACTOR SHALL TAKE CARE NOT TO ALLOW THE EXISTING EARTH FILL TO FALL INTO THE WATERWAY.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN THE PAYMENT FOR "RIPRAP, HEAVY, SPECIAL".

### EROSION AND SEDIMENTATION CONTROL

KEY	QUANTITY	PAY ITEM
55	4 EA	EROSION CONTROL, FILTER BAG
26	500 FT	TURBIDITY CURTAIN (SHALLOW)
39A	100 FT	EROSION CONTROL, SILT FENCE
39A	4 EA	EROSION CONTROL, INLET PROTECTION, FABRIC DROP
	1 LS	SEDIMENTATION CONTROL

### SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	EXISTING			PROPOSED			
	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL. 3 U/S OF PROPOSED STRUCTURE
50 YEAR	1500	609.2	13.3	606	9.9	1321	3.2
100 YEAR	1800	610.2	13.8	607.8	11.9	1842	1.9

MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 151 SQUARE FEET

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOORPLAIN. THE ELEVATIONS MAY NOT BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

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