

# GRAND TRAVERSE ROAD COMMISSION

## AUTOMATED TRUCK WASH

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### HYDRO-CHEM SYSTEMS PRIMARY CONTACT INFORMATION

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QCD BY:	DATE	QCD BY:	DATE
NOTE: ITEMS SPECIFIED AND DETAILS INDICATED MAY BE SUBJECT TO NATIONAL OR LOCAL CODES AND REGULATIONS.		DRAWN BY: M. HIRZEL	APPROVED BY:
		PROJECT ENGR: G. WESTFALL	DATE:
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		CUSTOMER	GRAND TRAVERSE ROAD COMMISSION D
SCALE: NTS	SIZE	DRAWING NUMBER	1
DATE: 4/26/2018	D	HC-P-M-226	1 6 7
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## EQUIPMENT ABBREVIATIONS

ACP-R	AIR CONTROL PANEL - RINSE
ACP-D	AIR CONTROL PANEL - DETERGENT
BA	BLOWER ARCH
BMS	BLOWER MOTOR STARTER
BOMS	OSCILLATING BLOWER MOTOR STARTER
BP	BOOSTER PUMP
BPMs	BOOSTER PUMP MOTOR STARTER
BRA	BRUSH ARCH
BT	BRINE TANK
DA	DETERGENT ARCH
DD	DETERGENT DRUM
DM	DETERGENT MODULE
DSPE	DOOR SAFETY PHOTOEYE
DT	DETERGENT TOTE
DT	DETERGENT TANK
FFV	FRESH FILL VALVE
FRA	FINAL RINSE ARCH
FBA/RBA	FRONT BLAST ARCH/REAR BLAST ARCH
FRP	FINAL RINSE PUMP
FRPMs	FINAL RINSE PUMP MOTOR STARTER
FRT	FRESH RINSE TANK
GR	GUIDE RAILS
HDPE	HEIGHT DETECTION PHOTOEYE
HPLS	HYDRAULIC PACK LEVEL SENSOR
LS	LIMIT SWITCH
MCP	MASTER CONTROL PANEL
OBA	OSCILLATING BLASTER RINSE ARCH
ODM	OVERHEAD DOOR MOTOR
ODA	OSCILLATING DETERGENT ARCH
PA	PROTECTANT ARCH
PD	PROTECTANT DRUM
PE	PIT ENHANCER
PE-E	PHOTOEYE - Emitter
PE-R	PHOTOEYE - RECIEVER
PHE	PHOTOEYE KIT
PRA	PRE-BLAST RINSE ARCH
Pt	PROTECTANT TOTE
PW	PRESSURE WASHER UNIT
PWRB	PRESSURE WASHER REMOTE BOX
RBA	REAR BLASTER RINSE ARCH
RDV	RINSE DIVERTER VALVE
RECLAIM	RECLAIM SKID
RFV	RECLAIM FILL VALVE
RO	RO SKID
RORWT	RO REJECT WATER TANK
ROWT	RO WATER TANK
RPMS	RINSE PUMP MOTOR STARTER
RPWLS	RECLAIM PIT WATER LEVEL SENSOR
RRWT	RECLAIM RINSE WATER TANK
RTP	REMOTE TOUCH PANEL
RWLS	RECLAIM WATER LEVEL SENSOR
RWT	RINSE WATER TANK
SA	SANITIZER ARCH
SD	SANITIZER DRUM
SBA	SIDE BLAST ARCH
SFRA	SPOT FREE RINSE ARCH
SFRV	SPOT FREE RINSE VALVE
SM	SANITIZER MODULE
SRA	SPINNER RINSE ARCH
St	SANITIZER TOTE
ST	SANITIZER TANK
UCCP	UNDERCARRIAGE CORROSION PROTECTANT
UCP	UNDERCARRIAGE WASH PUMP
UCPMS	UNDERCARRIAGE WASH PUMP MOTOR STARTER
UCS	UNDERCARRIAGE SANITIZER
UCW	UNDERCARRIAGE WASH
WA	WAX ARCH
WD	WAX DRUM
WH	WATER HEATER
WLS	WATER LEVEL SENSOR
WM	WAX MODULE
WS	WATER SOFTENER
WSA	WHEEL SPINNER ASSEMBLIES
Wt	WAX TOTE
WT	WAX TANK

## ELECTRICAL SECTION

### START UP REQUIREMENTS:

HYDRO-CHEM SYSTEMS, INC. (HCS) WILL APPLY POWER TO MCP AND CHECK ROTATION OF MOTORS. UNDER NO CIRCUMSTANCES IS THE EQUIPMENT TO BE STARTED WITHOUT HYDRO-CHEM SYSTEMS REPRESENTATIVE PRESENT OR WARRANTY WILL BE VOIDED.

### ELECTRICAL CONTRACTOR SHALL FURNISH THE FOLLOWING:

- ① ALL PERMITS, PERMIT FEES, INSPECTIONS, ALL OTHER FEES AND SALES TAXES RELATING TO ALL ELECTRICAL WORK.
- ② ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES GOVERNING ELECTRICAL INSTALLATION.
- ③ ELECTRICAL SERVICE, MAIN ELECTRICAL DISTRIBUTION PANEL AND OTHER ELECTRICAL DISTRIBUTION PANELS AS REQUIRED.
- ④ ELECTRICAL SERVICE CONDUIT AND WIRING FROM ELECTRICAL DISTRIBUTION PANELS TO ALL WASH EQUIPMENT INCLUDING BUT NOT LIMITED TO HYDRO-CHEM SYSTEMS, INC. PANEL, PUMPS, PRESSURE WASHERS, WATER HEATERS, AND DEVICES IN CONNECTION TO THE WASH EQUIPMENT.
- ⑤ ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR POWER WIRING ALL OF (HCS) WASH EQUIPMENT. ELECTRICAL CONTRACTOR SHALL MAKE ALL TERMINATIONS. ADDITIONAL DETAILS ON TERMINATIONS ON SEPARATE DOCUMENTATION.
- ⑥ ELECTRICAL CONTRACTOR SHALL FURNISH ALL WIRE CONDUIT (EXPOSED, IN SLABS OR WALLS), JUNCTION BOXES, AND OTHER ITEMS AS REQUIRED FOR COMPLETE ELECTRICAL INSTALLATION.
- ⑦ ALL STARTERS SHALL BE PROVIDED BY (HCS) AND SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.
- ⑧ ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE ELECTRICAL INSTALLATION FOR THE ELECTRICAL SERVICE, POWER WIRING, CONTROL WIRING, AND ALL ELECTRICAL CONDUIT. THE ELECTRICAL SHALL BE LEFT COMPLETE AND READY FOR USE BY THE OWNER.
- ⑨ PACE LIGHTS ARE TO BE PROVIDED BY (HCS) AND ARE TO BE INSTALLED BY ELECTRICAL CONTRACTOR. THE PACE LIGHTS SHOULD BE INSTALLED AT 7'-0" A.F.F.
- ⑩ ALL ELECTRICAL CONDUIT STUB-UPS SHALL BE LOCATED WITHIN 3'-0" MAX OF JUNCTION BOXES.

### NOTE:

ALL ELECTRICAL METHODS AND MATERIALS SHALL BE SUITABLE FOR USE IN WET/CORROSIVE LOCATIONS PER NATIONAL AND LOCAL ELECTRICAL CODES.

ELECTRICAL WIRE SIZE ARE NATIONALLY MINIMUM REQUIRED BY HYDRO-CHEM SYSTEMS. SIZES MAY BE SUBJECT TO CHANGE PER LOCAL CODE AND REGULATIONS.

LOW VOLTAGE (LV) WIRE TO BE MINIMUM 16 AWG SINGLE CONDUCTOR OR 18 AWG MULTIPLE CONDUCTOR, PROVIDED BY ELECTRICAL CONTRACTOR. IN GROUND LOOP WIRE PROVIDED BY (HCS).

INPUTS 24VDC OUTPUTS 24VAC  
LOOP SENSOR INTERCONNECTING WIRE TO BE 2 CONDUCTOR SHIELDED TO MCP  
PACE LIGHTS 24VDC  
MOTORS 480V, 3 PHASE (WIRING TO BE SIZED BY OTHERS)  
MOTOR STARTERS BY (HCS), DISCONNECTS BY OTHERS

- ① 120V OUTLET RECEPTACLE
- ② CAT5 TO HIGH-SPEED INTERNET
- ③ 2 LV WIRES TO MCP
- ④ 3 LV WIRES TO MCP
- ⑤ 4 LV WIRES TO MCP
- ⑥ 5 LV WIRES TO MCP
- ⑦ 6 LV WIRES TO MCP
- ⑧ 7 LV WIRES TO MCP
- ⑨ 8 LV WIRES TO MCP
- ⑩ 9 LV WIRES TO MCP
- ⑪ 2 SHIELDED LV WIRES TO LOOP BOX
- ⑫ 2 LV WIRES TO RECLAIM SKID
- ⑬ 2 LV WIRES TO PRESSURE WASHER
- ⑭ 4 LV WIRES TO RO SKID
- ⑮ 2 LV WIRES TO LIFT STATION
- ⑯ 10 LV WIRES TO MCP
- ⑰ 14 LV WIRES TO MCP
- ⑱ HV INTERCONNECTION TO MOTOR STARTER BOX
- ⑲ 5 HV WIRES TO POWER WASHER
- ⑳ 2 HV WIRES TO POWER WASHER
- ㉑ 3 HV WIRES TO MCP

- ① 120V SINGLE PHASE POWER SOURCE
- ② 230V SINGLE PHASE POWER SOURCE
- ③ 240V THREE PHASE POWER SOURCE
- ④ 480V THREE PHASE POWER SOURCE
- ⑤ 415V THREE PHASE POWER SOURCE
- ⑥ 575V THREE PHASE POWER SOURCE
- ⑦ 230V THREE PHASE POWER SOURCE
- ⑧ 208V THREE PHASE POWER SOURCE
- ⑨ 380V THREE PHASE POWER SOURCE

## PLUMBING SECTION

OWNERS MECHANICAL/PLUMBING CONTRACTOR (M/PC) SHALL FURNISH THE FOLLOWING:

- ① (M/PC) SHALL BE RESPONSIBLE FOR AND FURNISH ALL PERMITS, PERMIT FEES, INSPECTION, ALL OTHER FEES AND SALES TAXES RELATING TO ALL PLUMBING WORK.
- ② (M/PC) SHALL FURNISH AND INSTALL ALL WATER SUPPLY PIPING FROM BUILDING WATER SUPPLY ENTRANCE TO EACH ITEM OF HYDRO-CHEM SYSTEMS EQUIPMENT. PLUMBING CONTRACTOR SHALL CONNECT ALL WATER SUPPLY PIPING TO HYDRO-CHEM SYSTEMS EQUIPMENT.
- ③ (M/PC) SHALL FURNISH AND INSTALL ALL PIPING REQUIRED TO INTERCONNECT THE VARIOUS ITEMS OF HYDRO-CHEM SYSTEMS EQUIPMENT.
- ④ (M/PC) SHALL FURNISH AND INSTALL ALL PLUMBING IN WALLS, EXPOSED AND UNDER FLOOR SLABS.
- ⑤ (M/PC) SHALL FURNISH AND INSTALL FLUE FOR WATER HEATER AND COORDINATE OPENING IN ROOF WITH GENERAL CONTRACTOR.
- ⑥ (M/PC) SHALL FURNISH AND INSTALL GAS METER, GAS SERVICE PIPING, GAS PIPING TO WATER HEATER, PRESSURE REGULATORS, AND SHALL CONNECT GAS TO HYDRO-CHEM SYSTEMS WATER HEATER.
- ⑦ (M/PC) SHALL BE RESPONSIBLE FOR FURNISHING PROPER GAS PRESSURE AS PER WATER HEATER MANUFACTURER'S RECOMMENDATIONS TO ASSURE PROPER FUNCTIONING OF HYDRO-CHEM SYSTEMS WATER HEATER.
- ⑧ (M/PC) SHALL FURNISH AND INSTALL ALL EXTERNAL PLUMBING (PER CODE).
- ⑨ FLEXIBLE 1/4" TUBING PROVIDED BY HCS AND INSTALLED BY PLUMBER

### NOTE:

ALL VALVES TO BE PROVIDED BY THE PLUMBER AND SHOULD BE BALL VALVES EXCEPT WHERE NOTED OTHERWISE. ALL ARCH CONNECTIONS ARE UNIONS AND WILL BE PROVIDED BY HCS.

OUTLETS OF THE DETERGENT MODULES SHOULD BE SCH 80 PVC BECAUSE OF THE CORROSIVE NATURE OF DETERGENTS THAT WILL BE CONTAINED IN THE LINE.

OUTLETS OF THE RINSE SYSTEM WILL SEE PRESSURES UP TO 400 PSI AND VOLUMES TO 250 GPM. TYPICALLY PLUMBERS USE SCH40 GALVANIZED PIPING.

THE LOWER THE RINSE PIPES ARE RUN IN HEIGHT UP TO THE RINSE ARCH THE QUICKER THE SYSTEM WILL CHARGE WHEN THE PUMP IS STARTED.

THESE REQUIREMENTS HAVE BEEN COMPILED IN AN EFFORT TO PREDICT ALL NEEDS. CUSTOMER AND PLUMBER/CONTRACTOR SHOULD REVIEW TO FIND ERRORS OR OMISSIONS.

THE CUSTOMER AND PLUMBER SHALL BE RESPONSIBLE FOR ALL PERMITS AND BUILDING CODE REQUIREMENTS.

THE FREQUENCY AT WHICH VEHICLES CAN BE WASHED IS DIRECTLY PROPORTINAL TO THE FILL RATE OF RWT.

FITTING SIZES LISTED ARE THE SIZE OF THE FITTINGS ON THE TANK.

PLUMBER SHOULD DO WHATEVER IS NEEDED TO SUPPLY THE MAXIMUM POUR OUT OF WATER AVAILABLE. IF NECESSARY, DUE TO LONG RUNS, THE PIPES SHOULD BE OVERSIZED.

PLUMBER WILL NEED TO PROVIDE BACK FLOW PREVENTER AS REQUIRED BY CODE AND KEEP IN MIND THE REDUCED PRESSURE EFFECT ON VOLUME OF FLOW.

AIR PROVIDED BY OWNER TO BE DRY, IF APPLICABLE A CONDENSATE SEPERATOR/FILTER IS REQUIRED PRIOR TO HCS FEED POINTS.

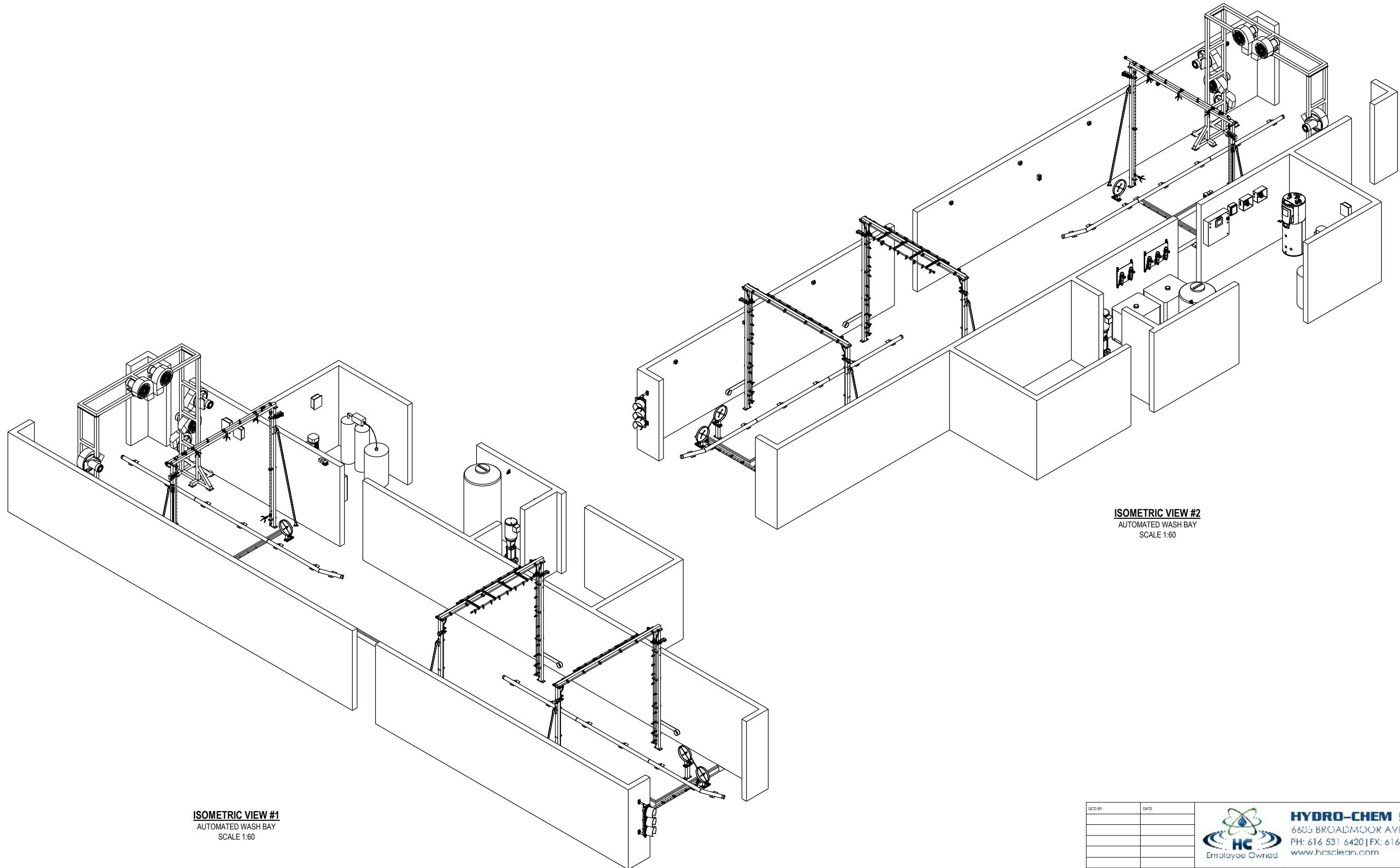
PROVIDE ADDITIONAL SUPPORTS FOR HIGH PRESSURE RINSE LINES, DUE TO SHOCK FACTOR WHEN PRESSURIZED.

- ① HOSE REEL
- ② EXPANSION TANK
- ③ UNION
- ④ FLOW DIRECTION
- ⑤ TEMPERATURE GAUGE
- ⑥ PRESSURE GAUGE
- ⑦ PRESSURE SWITCH
- ⑧ HOSE BIBB
- ⑨ VACUUM BREAKER
- ⑩ TEMPERING VALVE - Honeywell MX129 1.5"
- ⑪ CHECK VALVE
- ⑫ SHUT-OFF VALVE
- ⑬ SOLENOID VALVE
- ⑭ GATE VALVE
- ⑮ GLOBE VALVE
- ⑯ KNIFE VALVE
- ⑰ CONDENSATE SEPERATOR W/FILTER,AUTO DRAIN
- ⑱ 3-WAY DIVERTER VALVE
- ⑲ FULL FLOW FLAPPER CHECK VALVE
- ⑳ PRESSURE REDUCING VALVE

SUPPLIED BY:	
<input type="checkbox"/>	A HYDRO-CHEM SYSTEMS
<input type="checkbox"/>	B PLUMBING CONTRACTOR
<input type="checkbox"/>	C GENERAL CONTRACTOR
<input type="checkbox"/>	D CUSTOMER

NOTE: ALL INTERCONNECTING LINES PROVIDED BY PLUMBER UNLESS OTHERWISE NOTED

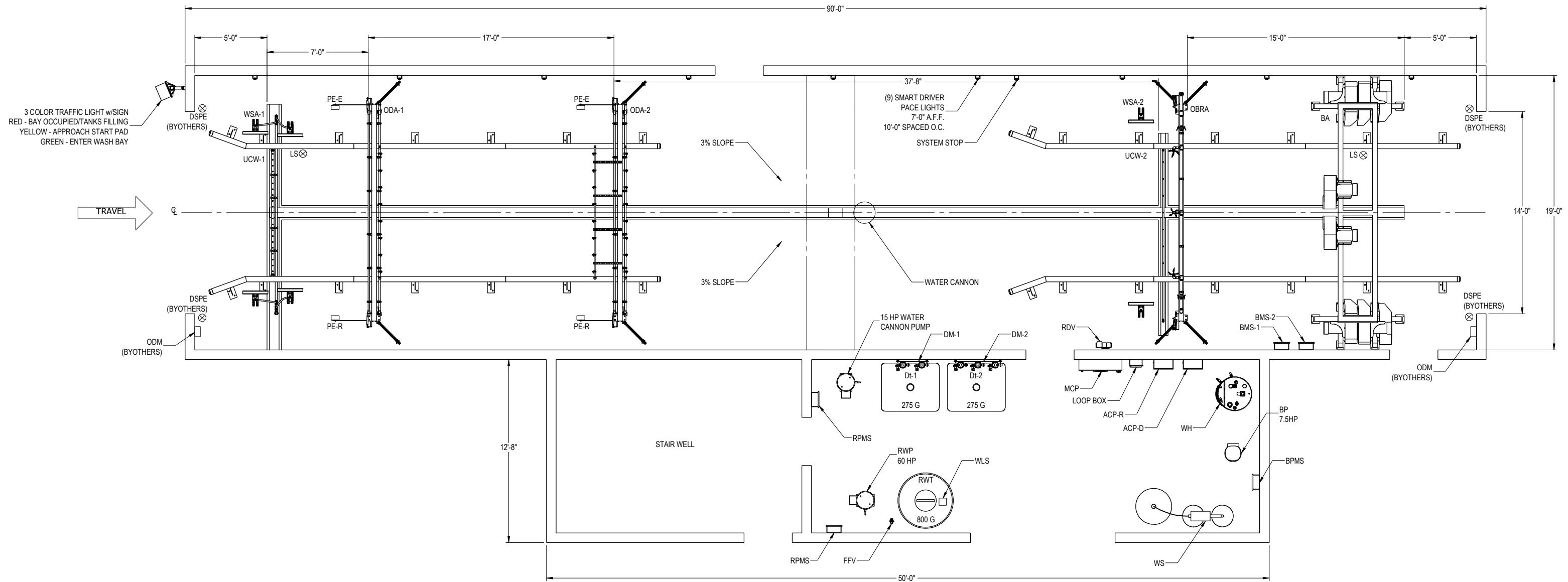
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DRAWN BY: M. HIRZEL	APPROVED BY:
PROJECT ENGR: G. WESTFALL	DATE:
DESCRIPTION: AUTOMATED TRUCK WASH LEGEND SHEET	
CUSTOMER: GRAND TRAVERSE ROAD COMMISSION	
SCALE: NTS	SIZE
DATE: 4/26/2018	D
DRAWING NUMBER: HC-P-M-226	
SHEET 2 OF 7	



**ISOMETRIC VIEW #1**  
AUTOMATED WASH BAY  
SCALE 1:60

**ISOMETRIC VIEW #2**  
AUTOMATED WASH BAY  
SCALE 1:60

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PROJECT ENGR:	G. WESTFALL		
DESCRIPTION			
CUSTOMER	GRAND TRAVERSE ROAD COMMISSION		
SCALE:	NTS		
SIZE	D		
DRAWING NUMBER	HC-P-M-226		
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REV.	REV. BY	DESCRIPTION	DATE
		REVISIONS	



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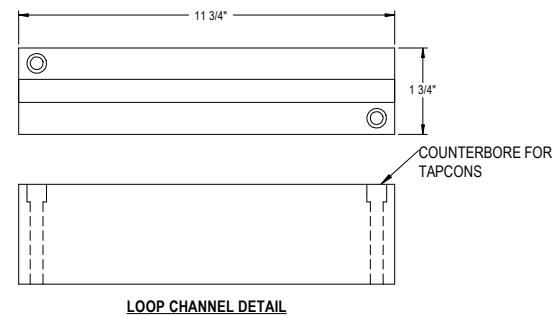


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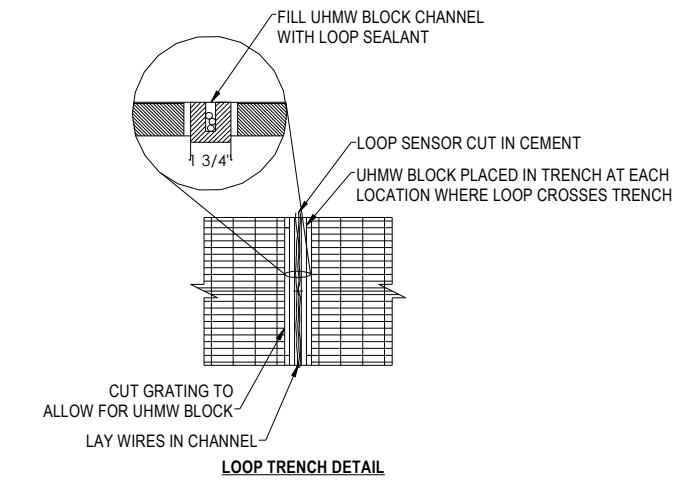
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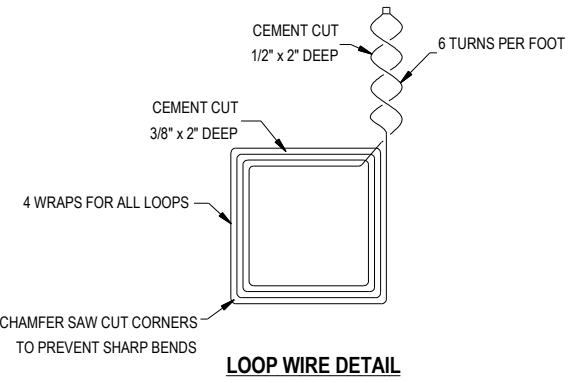
DRAWN BY: M. HIRZEL	APPROVED BY:		
OBJECT INGR: G. WESTFALL	DATE:		
DESCRIPTION			
<b>AUTOMATED TRUCK WASH</b> <b>MECHANICAL - OVERALL LAYOUT</b>			
COSTOMER			
<b>GRAND TRAVERSE ROAD COMMISSION</b>			
SCALE: NTS	SIZE	DRAWING NUMBER	SHEET
DATE: 4/26/2018	D	HC-P-M-226	4 of 7



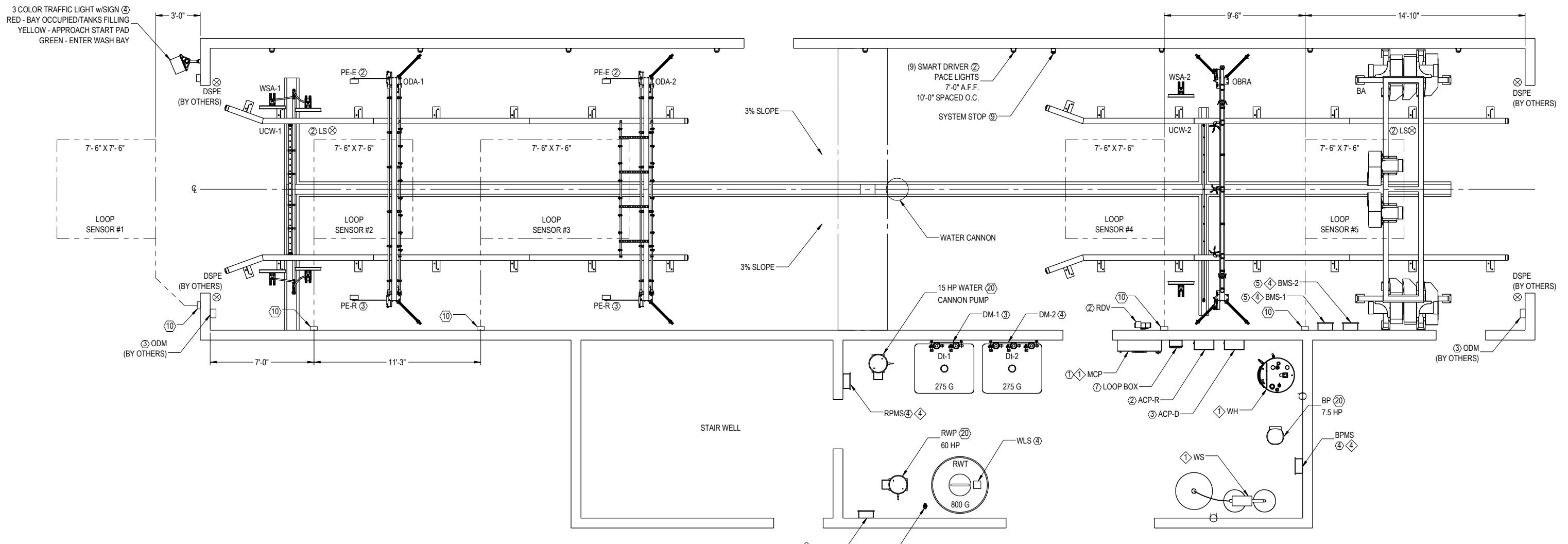
LOOP CHANNEL DETAIL



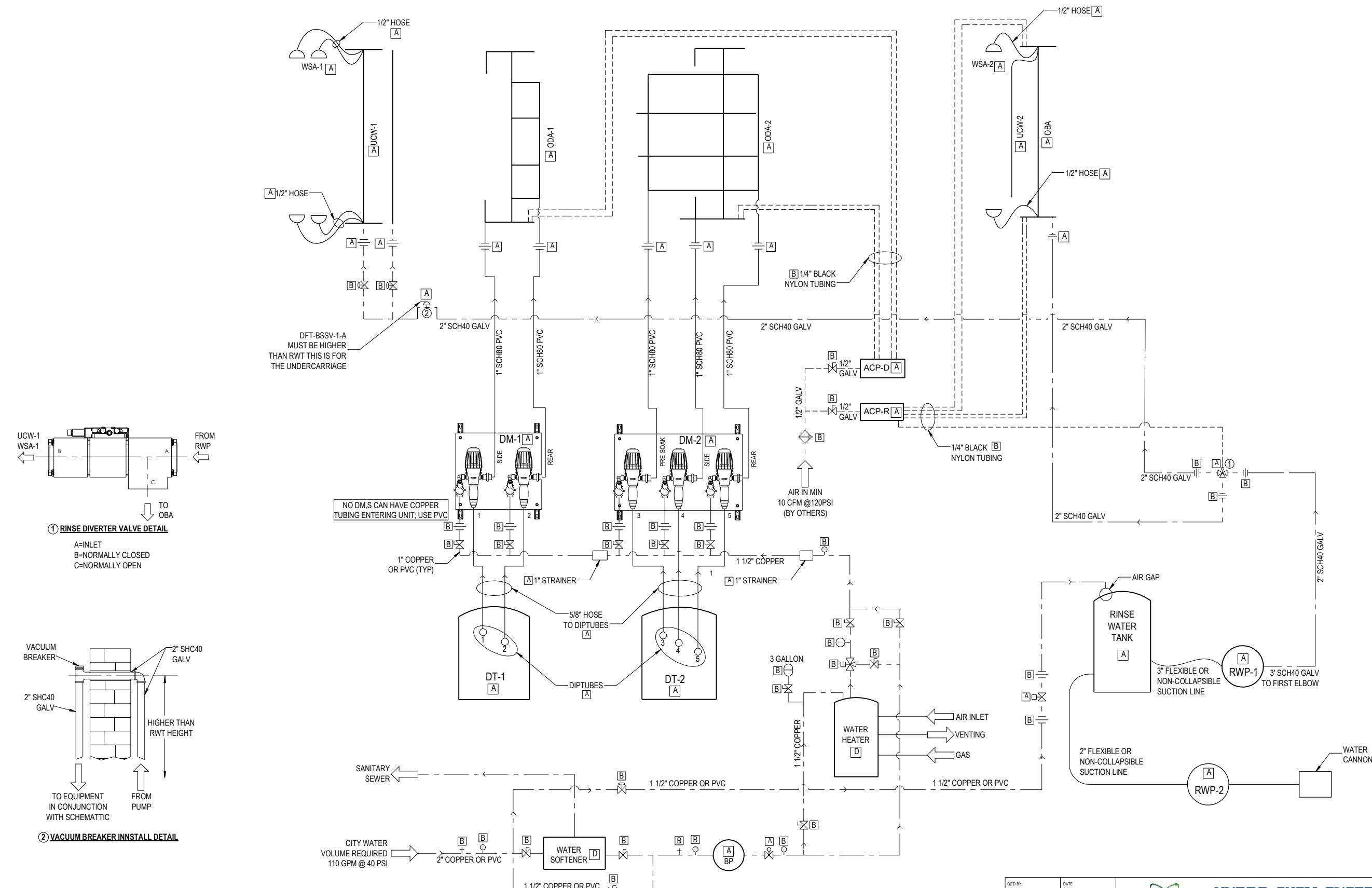
LOOP TRENCH DETAIL



LOOP WIRE DETAIL



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DESCRIPTION: AUTOMATED TRUCK WASH ELECTRICAL - OVERALL LAYOUT				
CUSTOMER: GRAND TRAVERSE ROAD COMMISSION				
SCALE: NTS	SIZE: D	DRAWING NUMBER: HC-P-M-226	DATE: 4/26/2018	SHET: 5 OF 7



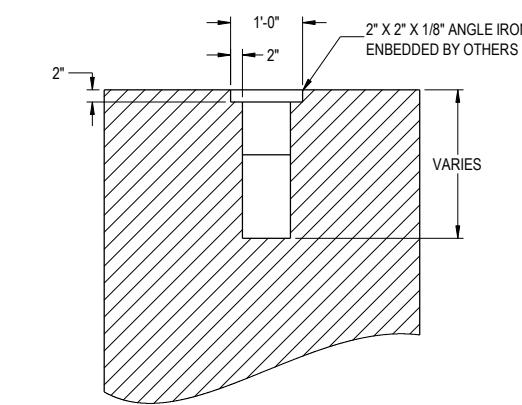
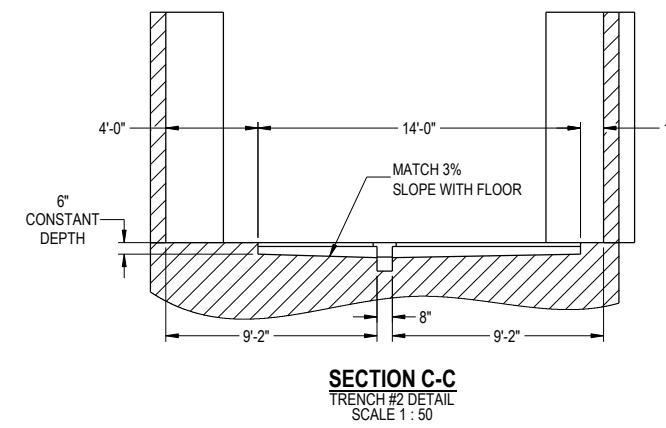
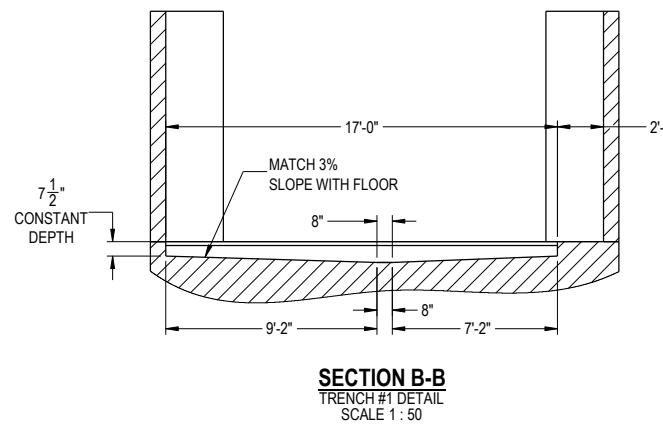
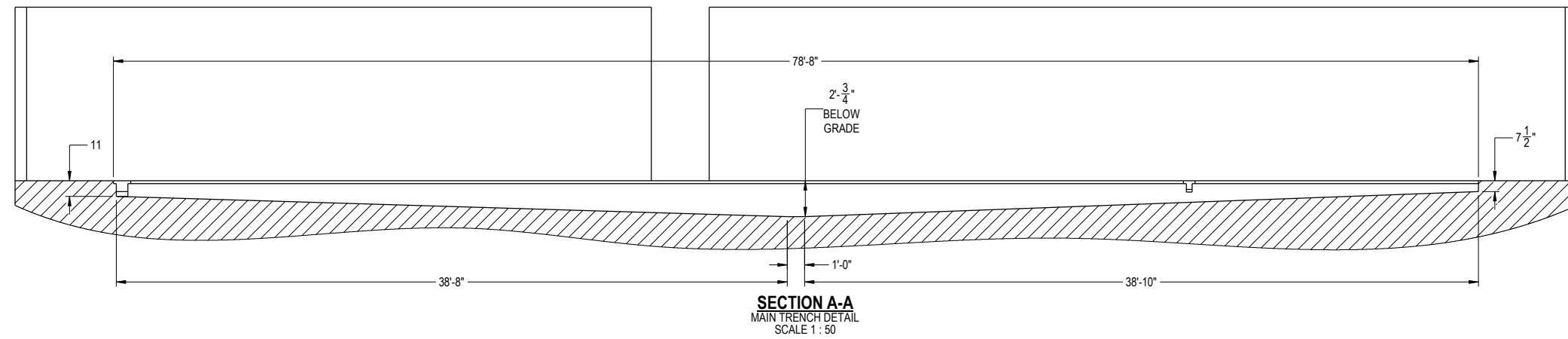
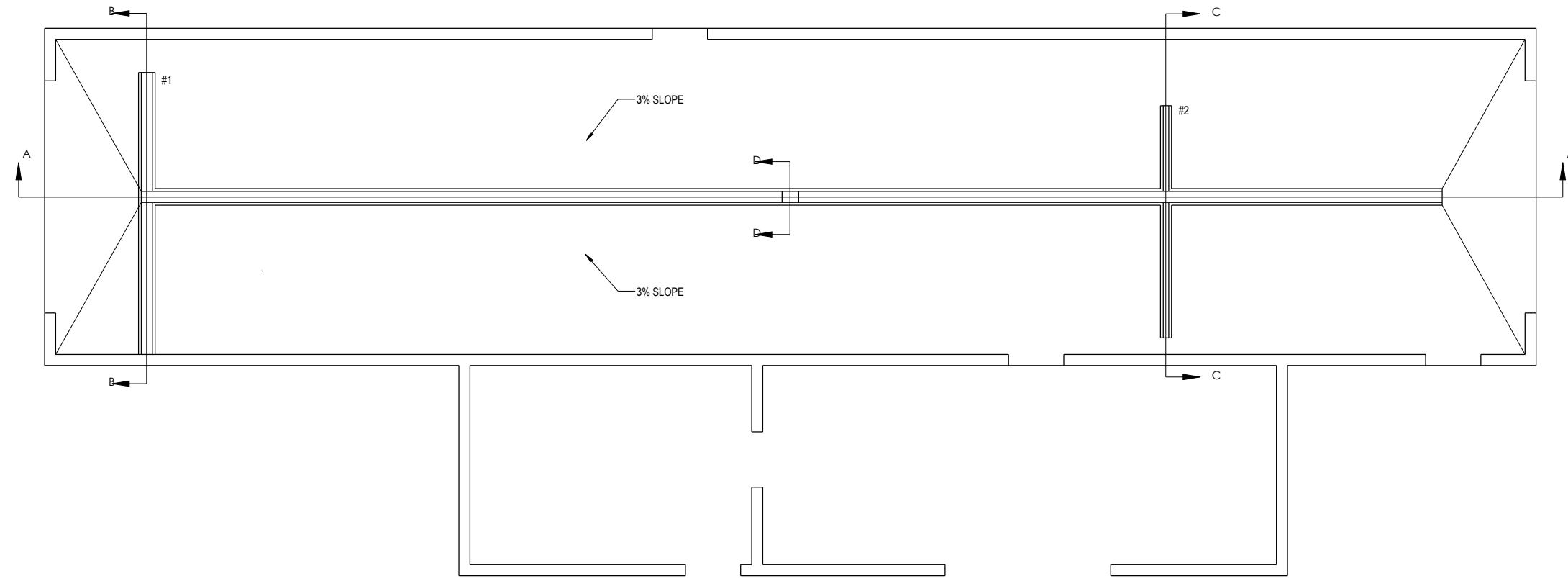
QCD BY:	DATE



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EXPRESSED WRITTEN PERMISSION.

DRAWN BY: M. HIRZEL PROJECT ENGR: G. WESTFALL DESCRIPTION	APPROVED BY: DATE:		
<b>AUTOMATED TRUCK WASH PLUMBING SCHEMATIC</b>			
CUSTOMER <b>GRAND TRAVERSE ROAD COMMISSION</b>			
SCALE: NTS	SIZE: D	DRAWING NUMBER: HC-B.M.206	SHEET 6 OF 7



QCD BY:	DATE	 Employee Owned
PROJECT ENGR:	DATE	
DRAWN BY: M. HIRZEL		
APPROVED BY: G. WESTFALL		
DESCRIPTION: AUTOMATED TRUCK WASH TRENCH DETAIL		
CUSTOMER: GRAND TRAVERSE ROAD COMMISSION		
SCALE: NTS	SIZE: D	DRAWING NUMBER: HC-P-M-226
DATE: 4/26/2018	REV.:	REV. BY:
DESCRIPTION: REVISIONS		
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