REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

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March 15, 2012

Mr. Hasan Ahmed
Environmental Engineer
New York State Department of Environmental Conservation
Hunters Point Plaza
47-40 21st Street
Long Island City, New York 11101-5407

Re: Addendum to the Revised Remedial Design/Remedial Action Work Plan
Amtrak Sunnyside Yard, Queens, New York

Dear Mr. Ahmed:

Remedial Engineering P.C (Remedial Engineering) and Roux Associates, Inc. (Roux Associates) on behalf of the National Railroad Passenger Corporation (Amtrak) and the New Jersey Transit Corporation (NJTC) are submitting this addendum to the Revised Remedial Design/Remedial Action Work Plan for Operable Unit 3, Sunnyside Yard, Queens, New York (RD/RA Work Plan). The RD/RA Work Plan was submitted to the New York State Department of Environmental Conservation (NYSDEC) on July 26, 2011 and was approved by the NYSDEC on October 20, 2011. Since the approval of the RD/RA Work Plan, Remedial Engineering and Roux Associates have made value added adjustments aimed at improving the efficiency and functionality of the mobile separate-phase petroleum hydrocarbon (SPH) recovery system with the following proposed changes:

- Operate the system using two liquid ring pumps (LRPs) rather than four. Each LRP will be the same size and will apply a vacuum up to 10 to 12 DPVE wells and/or two zones. The LRPs have been increased in size to be capable of handling approximately 600 cubic feet per minute (cfm) and 29 inches of mercury (in. of Hg). Each LRP will be interconnected to each zone to allow for maximum operational flexibility during LRP maintenance.

- Each zone (up to 6 DPVE wells) will have dedicated two-way, normally closed solenoid valves to allow for automation of each zones operation. The previous design assumed all zones would have been turned on or off manually. This will allow for more efficient operation of each zone for any defined period of time of hours or days.

- Increase the size of the oil water separator (OWS) from 45 gpm to 200 gpm. During the pilot study emulsified product/water was seen in the water effluent chamber in the 10 gpm OWS used for the pilot study. Emulsification of product can reduce the performance level of the OWS. By providing additional capacity in the OWS, it will allow the emulsified product/water mixture pumped from the knockout tanks of the LRPs to separate prior to effluent discharge. This will

reduce the potential for high level alarms in the OWS and extend the life of the organoclay filter units.

- Reconfigure the location of the remediation system equipment to allow for Amtrak's proposed extension of the High Speed Train Facility building and relocated roadway, as shown on Drawing 1.

An updated process and instrumentation diagram reflecting the changes described above is provided as an attachment (Drawing 2).

Although the number of LRPs has been reduced, the proposed system automation through the use of solenoid valves will provide better control and optimization of the SPH product recovery by focusing on the DPVE wells and/or zones that have measurable SPH. In addition, the system will be more energy efficient with less horsepower required to perform the same work. The system will still have a significant capacity of operating up to four zones or 24 DPVE wells at the same time.

The system is designed to remove total fluids from the well network via vacuum extraction. Groundwater well pumps will not be used. The liquid extraction rate is expected to be approximately 10 gpm combined. The first pumping units in the system are liquid transfer pumps that are designed for a maximum rate of 20 gpm (10 gpm normal flow) each for a total maximum rate of 40 gpm. These transfer pumps will only run when the moisture separator tanks are full and will not run continuously. Therefore, based on the extraction technology and maximum system flow rate of 40 gpm, a Long Island well permit is not applicable.

Should you have any questions or require any additional information during your review, please do not hesitate to contact me at (631)232-2600.

Sincerely,

REMEDIAL ENGINEERING, P.C.

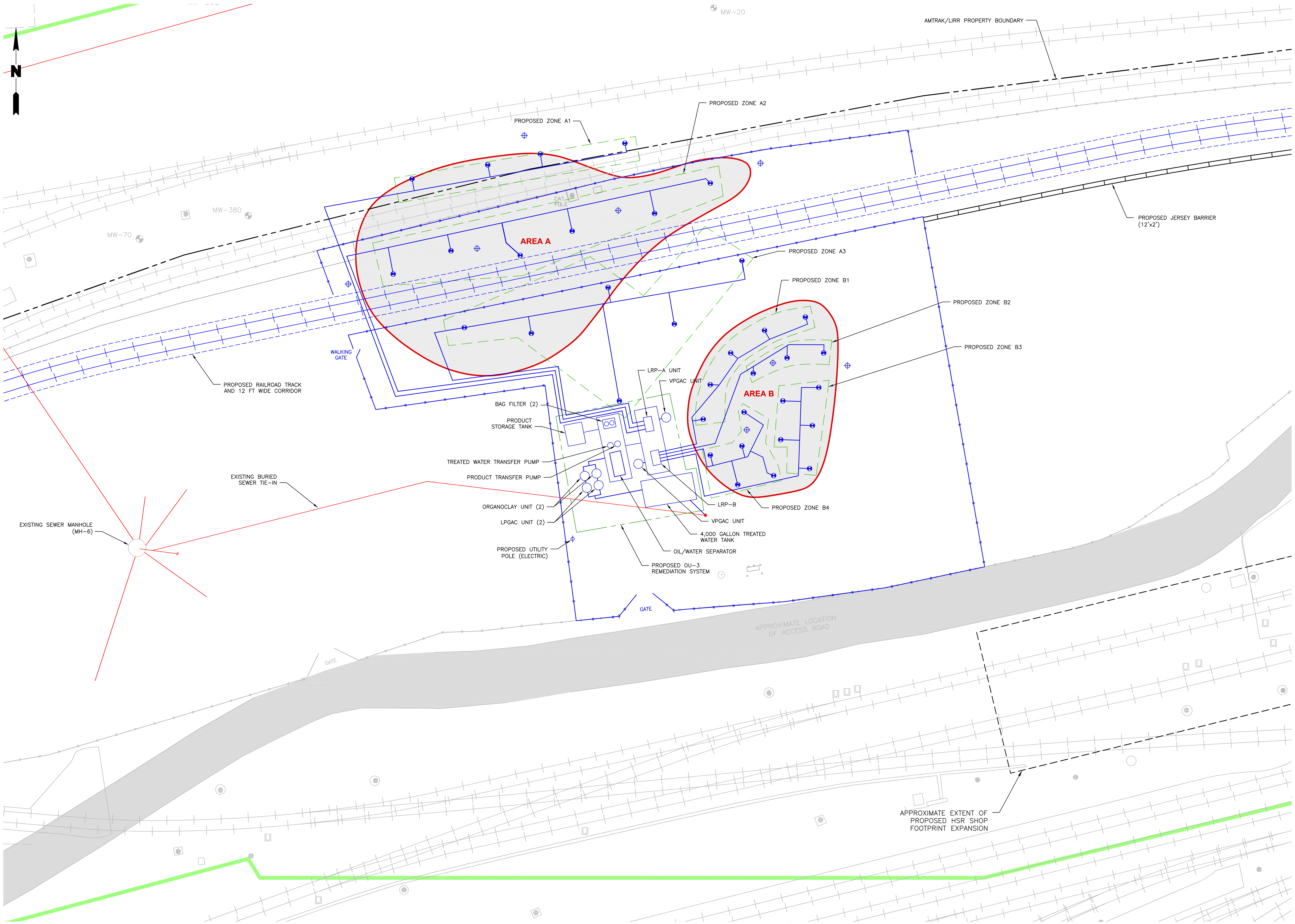
Charles J. McGuckin, P.E.
NYS Professional Engineer #069509

March 15, 2012
Date

Signature

Attachment

cc: Jane O'Connell, NYSDEC
Christopher Doroski, NYSDOH
Richard Mohlenhoff, P.E., Amtrak
Martin Judd, New Jersey Transit
Claudia Taccetta, Amtrak
Joseph D. Duminuco, Roux Associates, Inc.
Robert Kovacs, Roux Associates, Inc.



LEGEND

- OPERABLE UNIT 3 BOUNDARY
- EXISTING RAILROAD TRACK
- PROPOSED UTILITY POLE
- LOCATION OF EXISTING CATENARY POLES
- LOCATION OF PROPOSED DUAL PHASE VACUUM EXTRACTION WELL
- LOCATION OF PROPOSED OBSERVATION WELL
- MW-38D LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
- PROPOSED ABOVEGROUND PIPING
- EXISTING CHAIN-LINK FENCE
- PROPOSED CHAIN-LINK FENCE FOR DUAL PHASE EXTRACTION SYSTEM AREA
- KNOWN REMAINING SUBSURFACE PIPE OR STRUCTURES
- EXTENT OF 0 FT SEPARATE PHASE HYDROCARBON THICKNESS CONTOUR (BASED ON JULY 27, 2010 MONITORING RESULTS)
- PROPOSED NEW RAILROAD TRACK (INCLUDES 12 FT WIDE CORRIDOR)
- APPROXIMATE EXTENT OF PROPOSED HSR SHOP FOOTPRINT EXPANSION
- EXTENT OF PROPOSED OU-3 REMEDIATION SYSTEM
- EXTRACTION WELL NETWORK AREA

NOTE

THIS DRAWING DOES NOT INCLUDE ALL SUBSURFACE STRUCTURES AND UTILITIES (I.E., FORMER FOUNDATIONS, PIPES, ETC.)

NO.	DATE	REVISION DESCRIPTION	INT.
2	2/8/12	REVISED TO SHOW NEW SYSTEM LOCATION	G.N.
1	7/11/11	REVISED TO SHOW NEW SYSTEM LOCATION	G.N.

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PROJ. ENGINEER: G.N.	DRAWN BY: J.A.D.
DESIGNED BY: D.M.H.	CHECKED BY: G.N.
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Remedial
REMEDIAL ENGINEERING, P.C.
209 Shafter Street
Islandia, New York 11749 (631) 232-2600

PROJECT NAME:
REMEDIAL DESIGN/ REMEDIAL ACTION WORK PLAN OU-3

PROJECT FOR:
AMTRAK SUNNYSIDE YARD
QUEENS, NEW YORK

TITLE:
DUAL PHASE VACUUM EXTRACTION SYSTEM EQUIPMENT AND PIPING LAYOUT (REVISED)

DRAWING NO.
1
DRAWING 1 OF 2

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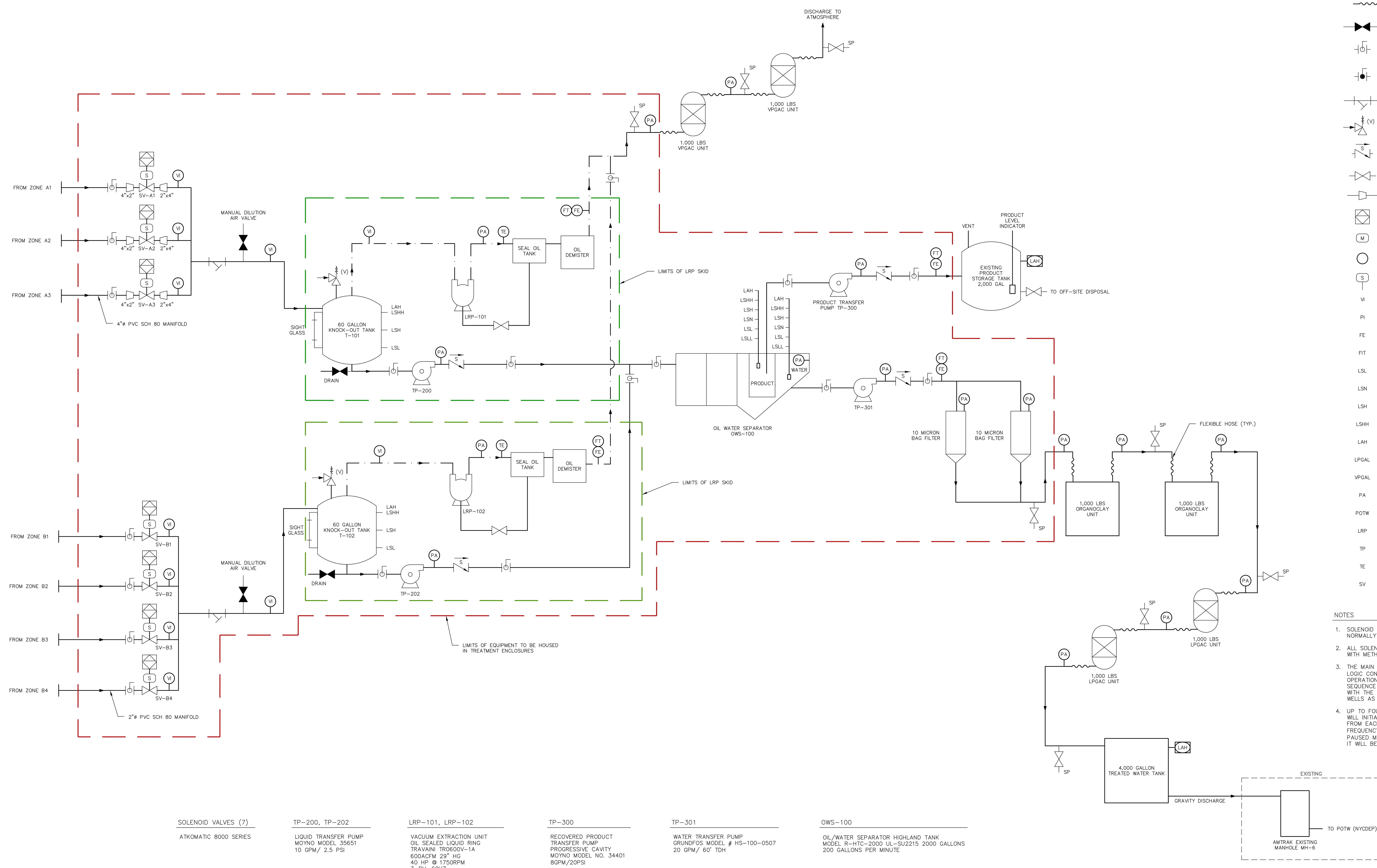

LINE SYMBOLS

- PROCESS STREAM
- ELECTRICAL SIGNAL
- FLEXIBLE HOSE
- GATE VALVE (N.C.)
- BALL VALVE (N.O.)
- BALL VALVE (N.C.)
- "Y" STRAINER
- VACUUM RELIEF VALVE
- CHECK VALVE
- SAMPLE PORT (SP)
- REDUCER
- PLC INTERLOCK
- ELECTRIC MOTOR
- LOCALLY (FIELD) MOUNTED INSTRUMENT
- SOLENOID

VI	VACUUM INDICATOR
PI	PRESSURE INDICATOR
FE	FLOW ELEMENT
FIT	FLOW TRANSMITTER
LSL	LEVEL SWITCH LOW
LSN	LEVEL SWITCH LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LAH	LEVEL ALARM HIGH
LPGAL	LIQUID PHASE CARBON
VPGAL	VAPOR PHASE CARBON
PA	PRODUCT ALARM
POTW	PUBLIC OWNED TREATMENT WORKS
LRP	LIQUID RING PUMP
TP	TRANSFER PUMP
TE	TEMPERATURE ELEMENT
SV	SOLENOID VALVE

NOTES

1. SOLENOID VALVES SV-A1 THROUGH SV-B4 SHALL BE NORMALLY CLOSED UNLESS SPECIFIED OTHERWISE.
2. ALL SOLENOID VALVES SHALL BE TAGGED IN FIELD AS SHOWN WITH METHOD APPROVED BY THE ENGINEER.
3. THE MAIN CONTROL PANEL WILL UTILIZE A PROGRAMMABLE LOGIC CONTROLLER(PLC). THE PLC WILL SEQUENCE THE OPERATION OF THE SOLENOID VALVES. THE SYSTEM WILL SEQUENCE OPERATION OF THE SOLENOID VALVES CONSISTENT WITH THE OPTIMAL PRODUCT RECOVERY RATE FROM THE DPVE WELLS AS DETERMINED BY THE ENGINEER.
4. UP TO FOUR ZONES CAN BE OPERATED AT A TIME. THE PLC WILL INITIATE THE OPENING OF THE TWO SOLENOID VALVES FROM EACH ZONE ACCORDING TO THE PREDETERMINED FREQUENCY (I.E., ONCE EVERY 24 HOURS). IF THE SYSTEM IS PAUSED MID-CYCLE OR INTERRUPTED (I.E., POWER FAILURE), IT WILL BE MANUALLY RESET.

SOLENOID VALVES (7)

ATKOMATIC 8000 SERIES

TP-200, TP-202

LIQUID TRANSFER PUMP
MOYNO MODEL 35651
10 GPM/ 2.5 PSI

LRP-101, LRP-102

VACUUM EXTRACTION UNIT
OIL SEALED LIQUID RING
TRAVAINI TR0600V-1A
600ACFM 29" HG
40 HP @ 1750RPM
3-PH, 60HZ
REFER TO NOTES

TP-300

RECOVERED PRODUCT
TRANSFER PUMP
PROGRESSIVE CAVITY
MOYNO MODEL NO. 34401
8GPM/20PSI

TP-301

WATER TRANSFER PUMP
GRUNDFOS MODEL # HS-100-0507
20 GPM/ 60' TDH

OWS-100

OIL/WATER SEPARATOR HIGHLAND TANK
MODEL R-HTC-2000 UL-SU2215 2000 GALLONS
200 GALLONS PER MINUTE

NO.	DATE	REVISION DESCRIPTION	INT.
1	2/07/12	REVISED TO SHOW TWO LRPS	G.N.

STATE OF NEW YORK · CHARLES J. McGUCKIN · LICENSED PROFESSIONAL ENGINEER · 3/14/12

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PROJECT NAME:
REMEDIAL DESIGN/ REMEDIAL ACTION WORK PLAN OU-3

PROJECT FOR:
AMTRAK SUNNYSIDE YARD
QUEENS, NEW YORK

TITLE:
PROCESS AND INSTRUMENTATION DIAGRAM

DRAWING NO.
2