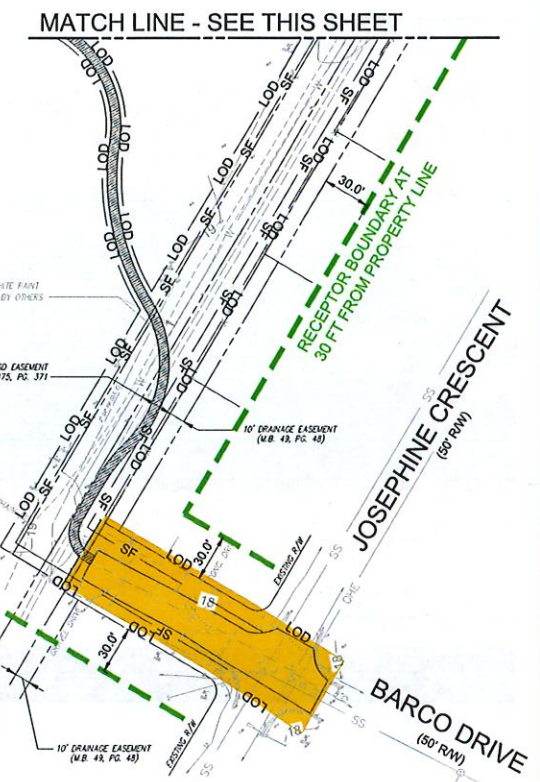


- NOISE MONITORING NOTES:**
1. CONTRACTOR SHALL MONITOR AND DOCUMENT BASELINE NOISE LEVELS AT THREE (3) OR MORE LOCATIONS NEAR THE IDENTIFIED RECEPTOR BOUNDARY DURING NON-WORKING PERIODS.
  2. CONTRACTOR SHALL MONITOR AND DOCUMENT NOISE LEVELS AT THE SAME RECEPTOR LOCATIONS DURING THE PEAK ACTIVITY PERIOD.
  3. CONTRACTOR SHALL USE A TYPE 2 / CLASS 2 SOUND LEVEL METER THAT MEETS OR EXCEEDS IEC 61672.



**NOISE GENERATION AND IMPACTS**

PHASE	ACTIVITY	DAY	NIGHT	EQUIPMENT	QUANTITY	ACOUSTICAL USE FACTOR (%)	WORK DESCRIPTION	RECEPTOR*	DISTANCE TO RECEPTOR (ft)	COMBINED CALCULATED (dBA) L10		LIMITS (dBA) (L10)†		SHIELDING (db)‡	COMBINED CALCULATED EXCEEDANCE (dBA)§		NOTES / ACTIONS	
										Lmax	L10	Lmax	L10		Day	Night		
0	Construction Entrance	Yes	No	Dump Truck	5	40%	Delivery and removal of materials.	Residential homes	30	77.9	76.9	85	75	3	1.9	N/A	Exceedance is minimal. Receptor is the residential property that fronts Providence Road, therefore anticipated Daytime Baseline is likely to be at or exceeding the calculated noise level.	
1	Excavation	Yes	No	Excavator	2	40%	Waterline installation along eastern property boundary	Residential homes	300									
1	Excavation	Yes	No	Off-Road Dump Truck	3	80%	Waterline installation along eastern property boundary	Residential homes	135	77.9	78.6	85	75	3.0	3.6	N/A	No actions required	
1	Excavation	Yes	No	Dozer	1	40%	Maintenance of stockpile and site.	Residential homes	135									
1	Dewatering	Yes	Yes	Pumps (Per dba required)	2	100%	Dewatering of tank excavation.	Residential homes	500									
2	Pile Driving	Yes	No	Pile Driver Impact	1	20%	Pile Driving for tank foundation	Residential homes	510									No actions required
2	Pile Driving	Yes	No	Use Crane, Derrick	1	18%	Crane for pile driving	Residential homes	490	77.8	74.1	85	75	3.0	No Exceedance	N/A	Exceedance is minimal. Consider application of an Acoustic Shadow/Barrier such as straw bales or other. Combine with receptor perimeter monitoring.	
2	Dewatering	Yes	Yes	Pumps (Per dba required)	2	100%	Dewatering of tank excavation	Residential homes	500									5.9
3	Utility Installation	Yes	No	Backhoe	1	40%	Waterline installation along eastern property boundary	Residential homes	30	79.0	78.0	85	75	3.0	3.0	N/A		
3	Utility Installation	Yes	No	Compactor	1	40%	Waterline installation along eastern property boundary	Residential homes	30	84.7	80.7	85	75	3.0	5.7	N/A		
3	Utility Installation	Yes	No	Loader	1	40%	Waterline installation along eastern property boundary	Residential homes	30	80.5	79.6	85	75	3.0	4.6	N/A	Exceedance is minimal. Possible additional shielding will occur via existing vegetation and stockpile storage area. Install receptor perimeter monitoring and potential remediation of proximity related equipment.	
3	Tank Construction	Yes	No	Use Crane, Derrick	2	16%	Tank construction consisting of concrete placement and precast element placement.	Residential homes	480									
3	Tank Construction	Yes	No	Concrete Mixer	2	15%	Tank construction consisting of concrete placement and precast element placement.	Residential homes	480									
3	Tank Construction	Yes	No	Concrete Vibrator	1	15%	Cast in place concrete placement.	Residential homes	480	60.4	61.4	85	75	3.0	No Exceedance	N/A		
3	Tank Construction	Yes	No	Air Compressor	1	15%	For use near tank.	Residential homes	480									
3	Tank Construction	Yes	No	Loader	1	40%	For use on site-wide soil and material placement.	Residential homes	480									
4	Backfill & Final Grading	Yes	No	Excavator	1	40%	Backfilling of excavated areas and site-wide grading.	Residential homes	115									
4	Backfill & Final Grading	Yes	No	Off-Road Dump Truck	2	40%	Backfilling of excavated areas and site-wide grading.	Residential homes	115	69.1	71.7	85	75	3.0	No Exceedance	N/A	No actions required	
4	Backfill & Final Grading	Yes	No	Roller	1	40%	Backfilling of excavated areas and site-wide grading.	Residential homes	250									
4	Backfill & Final Grading	Yes	No	Grader	1	40%	Backfilling of excavated areas and site-wide grading.	Residential homes	250									
4	Backfill & Final Grading	Yes	No	Paver	1	40%	Paving of Barco Drive.	Residential homes	40	76.2	76.1	85	75	3.0	1.1	N/A	Exceedance is minimal. No actions required.	

\* NOTE: All calculations and noise data were developed using the Roadway Construction Noise Model (RCNM) developed by the Federal Highway Administration (FHWA), Version 3.1, 12/08/2008

**Attachment 12-B**

MATCH LINE - SEE THIS SHEET

SCALE: 1" = 60'

FILE: D:\1414\PROJ\1414-000\CAD\1414-000-CONSTRUCTION\FIGURES\PRECONSTRUCTION\FIGURES.dwg BY: MBRANDT Date: 8/20/19 11:57 AM  
 PLOT DATE: 8/20/19 11:58 AM PLOT: MBRANDT

PROJECT ENGINEER:	T. McPHERSON		
DESIGNED BY:	T. McPHERSON / C. LINK		
DRAWN BY:	M. BRANDT		
CHECKED BY:	T. McPHERSON		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"		
REV	ISSUED FOR	DATE	BY

**Hazen**  
 HAZEN AND SAWYER  
 4500 MAIN STREET, SUITE 500  
 VIRGINIA BEACH, VIRGINIA 23462  
 PHONE: 757 497-0490

**CROWDER CONSTRUCTION COMPANY**  
 SINCE 1947  
 CROWDER CONSTRUCTION COMPANY  
 111 BURMA DRIVE  
 APEX, NORTH CAROLINA 27539  
 PHONE: 800-849-5449

**City of Virginia Beach**

**HRSD**  
 PROVIDENCE ROAD OFF-LINE STORAGE FACILITY AND WOODSTOCK PARK IMPROVEMENTS

PRECONSTRUCTION ASSESSMENT AND DAMAGE MITIGATION PLAN  
 NOISE GENERATION AND IMPACTS  
 PHASE 4  
 BACKFILL & FINAL GRADING

DATE: AUGUST 2019  
 HAZEN NO.: 31419-000  
 FIGURE NO. 1.4