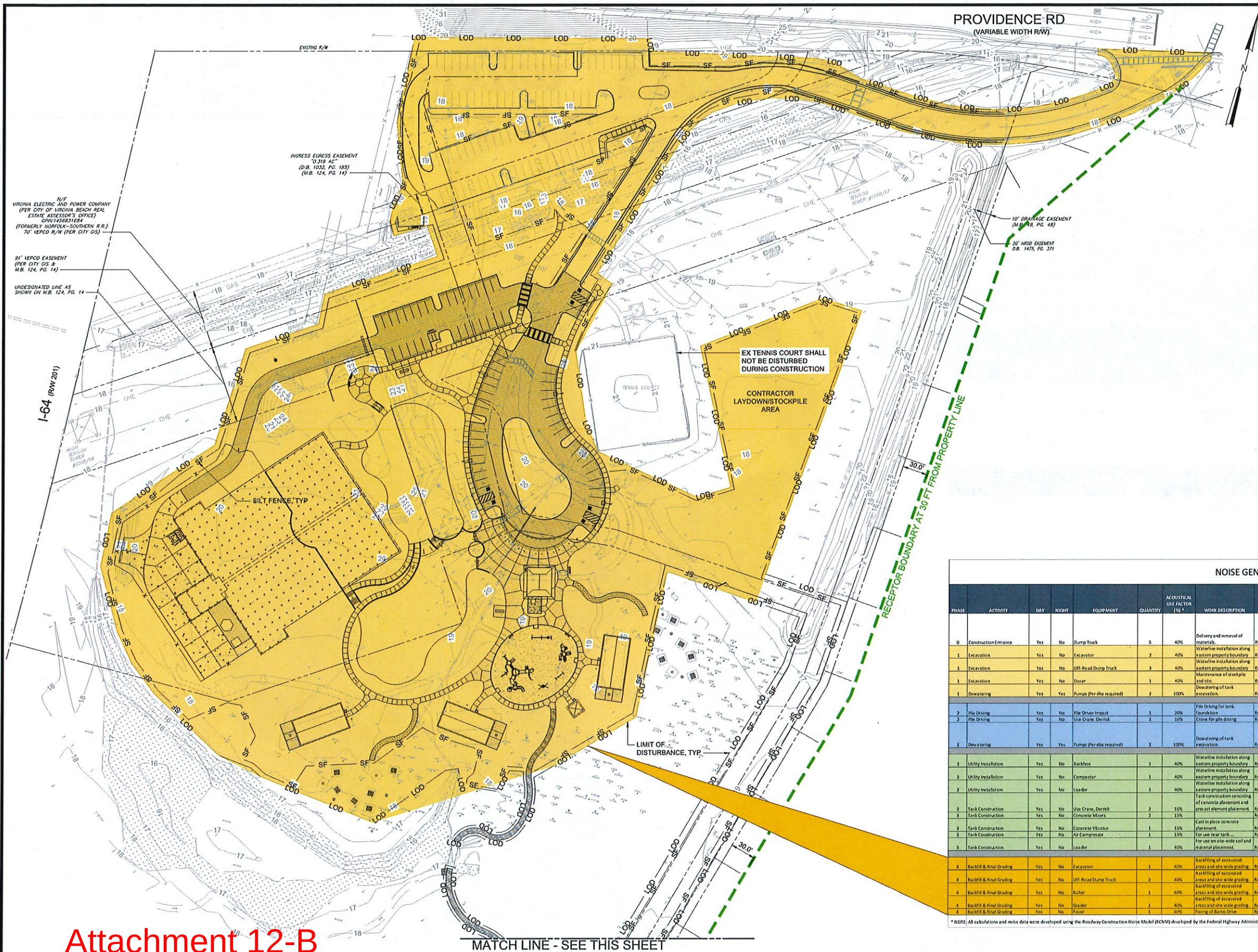
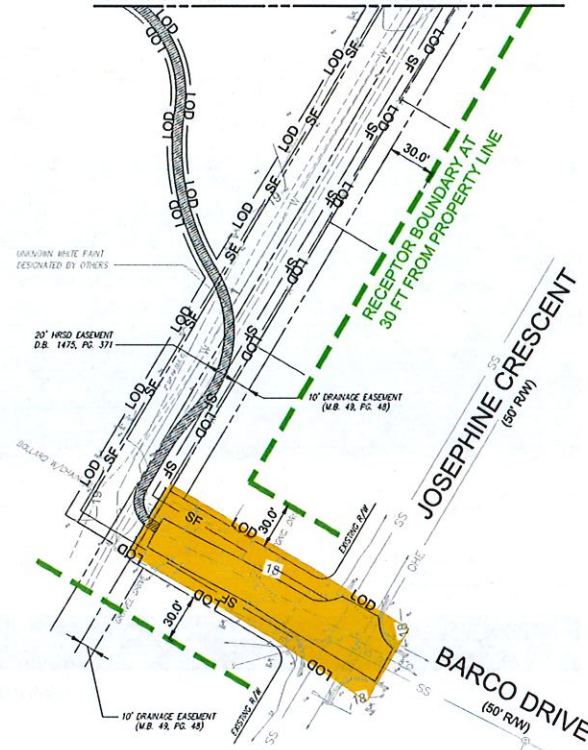




NOISE MONITORING NOTES:

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.

MATCH LINE - SEE THIS SHEET

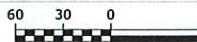


NOISE GENERATION AND IMPACTS

PHASE	ACTIVITY	DAY	NIGHT	EQUIPMENT	QUANTITY	ACOUSTICAL USE FACTOR (%) *	WORK DESCRIPTION	RECEPTOR *	DISTANCE TO RECEPTOR (ft)	COMBINED CALCULATED (dBA) Lmax		LIMITS (dBA) L10		SHIELDING (dBA) *	COMBINED CALCULATED EXCEEDANCE (dBA) Day		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								No actions required
1	Excavation	Yes	No	Off-Road Dump Truck	3	40%	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 data 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	Ull Crane, Derrick	1	10%	Crane for pile driving	Residential homes	480	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 data 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	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	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	
3	Tank Construction	Yes	No	Ull Crane, Derrick	2	10%	Tank construction consisting of concrete placement and precast element placement	Residential homes	480								
3	Tank Construction	Yes	No	Concrete Mixers	2	15%		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	135								No actions required
4	Backfill & Final Grading	Yes	No	Off-Road Dump Truck	2	40%	Backfilling of excavated areas and site-wide grading	Residential homes	135	69.1	71.7	85	75	3.0	No Exceedance	N/A	
4	Backfill & Final Grading	Yes	No	Bulldozer	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

SCALE: 1" = 60'



Attachment 12-B

MATCH LINE - SEE THIS SHEET

				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

CROWDER CONSTRUCTION COMPANY
1111 BURMA DRIVE
APEX, NORTH CAROLINA 27539
PHONE: 800-849-5449

VB
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