MTA Procurement

DATE: 04/29/2025

NON-CONSTRUCTION CONTRACT SOLICITATION NOTICE

MTA- HQ IS NOW ADVERTISING FOR THE FOLLOWING:

SSE #: 0000499545	**OPENING/DUE DATE: 05/27/2025**
TYPE OF SOLICITATION: IFB	**DOCUMENT AVAILABILITY DATE: 04/29/2025**

SOLICITATION TITLE: **All Furnish and Deliver Ready-mix Concrete**

DESCRIPTION: **The purpose of this Contract is to furnish and deliver to NYCT assorted types of ready-mix concrete, as specified herein, to various locations in the Boroughs of the Bronx, Brooklyn, Manhattan, Queens and/or Staten Island, as required and directed, for the 3-year Contract duration.**

Funding:100% Operating Goals: NA Est $ Range: $5M - $10M Contract Term: 3 Years

*** See attachment for additional information***

( ) PRE-BID CONFERENCE	**DATE:**	**TIME:**
( ) SITE TOUR N/A	**DATE:**	**TIME:**
PLACE:		

FOR MORE INFORMATION, PLEASE CONTACT:

PROCUREMENT REPRESENTATIVE: L.Drago

EMAIL: louis.drago@mtahq.org

Technical Specifications

FURNISH/DELIVER READY-MIX CONCRETE

ARTICLE 1 GENERAL

The purpose of this Contract is to furnish and deliver to NYCT assorted types of ready-mix concrete, as specified herein, to various locations in the Boroughs of the Bronx, Brooklyn, Manhattan, Queens and/or Staten Island, as required and directed, for the 3-year Contract duration.

ARTICLE 2 CEMENT

All cement contained in the ready-mix concrete shall be true Portland cement, by which is meant the product obtained by pulverizing clinker, consisting essentially of hydraulic calcium silicates, to which no additions have been made subsequent to calcination other than water and/or untreated calcium sulfate, except that additions not to exceed one (1) per cent of other materials may be interground with the clinker at the option of the manufacturer, provided such materials in the amounts indicated have not been shown to be harmful to the concrete, as per the latest applicable standards of the Portland Cement Association.

The cement shall, unless otherwise specified, conform to the requirements for Portland Cement, Types 1/11 of the standard specifications as contained in the American Society for Testing and Materials (ASTM), Serial Designation C 150-99a.

Cement for High Density Concrete Overlay used in platform rehabilitation shall conform to the most recent requirements for Portland Cement, Type II, of ASTM C 150-99a.

High Early Strength Portland Cement shall conform to the most recent requirements for Portland Cement, Type Ill, of ASTM C 150-99a.

The specific gravity of the cement shall not be less than 3.10, after being thoroughly dried at 212 degrees Fahrenheit. The color shall be uniform blueish gray and free from yellow and brown particles.

Before any cement is used in the concrete to be delivered hereunder, the proposed brand must receive an approval of the Engineer. Cement to be acceptable shall be of a well-known brand, which has an established reputation for uniform character. Preference will be given to cements, which by their records show a tendency to maintain high strength of mortar with increased age.

Cement and supplementary cementitious materials like fly ash, slag and micro silica shall be packed and delivered to the Contractor in bulk.

The cement used for this Contract shall be protected from absorbing moisture and shall not be stored by Contractor for more than sixty (60) days.

The Price Schedule line item for *Extra Cement* shall apply only when the NYCT Engineer explicitly directs the Contractor to modify an approved mix to use additional cement.

ARTICLE 3 FINE AND COARSE AGGREGATES

All aggregates (with the exception of lightweight aggregate) shall meet grading and quality requirements of ASTM Serial Designation C 33.

Fine aggregates for concrete shall be sand, having clean, hard, strong, uncoated grains, free from soft flaky

particles, loam, alkali, organic matter or other deleterious substances. It shall not contain more than two (2) per cent of silt by weight, as determined by decantation.

Coarse aggregates for concrete shall consist of gravel or broken stone, as ordered. Broken stone shall consist of sound, strong, hard stone and shall be either limestone, trap rock or other approved stone. It shall not contain dust, loam, clay organic or other deleterious matter. It shall be screened or washed, or both, if required.

Gravel shall consist of sound, tough, durable, hard, strong stone, free from dust, dirt, alkali, loam, sea salts, clay foreign and organic matter, coating or other deleterious substances, and shall have a large percentage of broken pieces, and shall be washed clean.

Concrete aggregates shall be stored separately on plank platforms or other clean, hard surfaces; the storage of aggregates under conditions which allow their mixing with earth, soil, dirt or other foreign material will not be permitted.

Frozen aggregates or aggregates containing masses of frozen material shall be thoroughly thawed before usage.

Coarse aggregates for Concrete Overlay used in platform rehabilitation shall be #8.

With the exception of coarse aggregate for 3/8" aggregate concrete, the fine and coarse aggregates used for concrete shall be graded according to the following:

Fine aggregate

Sieve (Specification E 11)	Percent Passing
3/8-inch	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	5 to 30
No. 100	0 to 10

Coarse aggregate

Coarse aggregate for concrete shall be graded per ASTM C 33; with size numbers to be as follows:

1. For concrete for general use: size number 57 or #67:

2. For concrete for thin walls and in form work, where depositing of concrete containing large aggregate is sufficient: size number 8:

3. For concrete in conditions other than specified above: size number as determined by the Engineer.

In 3/8" aggregate concrete one hundred percent (100%) of the coarse aggregate shall pass a 3/8" sieve, and not more than five percent (5%) shall be retained a No. 4 sieve.

ARTICLE 4 CONCRETE CLASSES AND PROPORTIONING ·

The concrete shall in general be composed of Portland cement, fine aggregate, coarse aggregate and water in the quantities and mixed in as specified herein.

The design mixes herein are given for guidance only. The Contractor shall submit for Engineer's approval its design mixes for each mix, using the same water/cement ratio as listed in the NYCT design mix. Listed cement factors are a minimum.

Each unit price for the design mixes shall include the cost to the Contractor to design and produce, a mix design, that is supervised by and bears the sign and seal of a NYS Licensed Professional Engineer or a New York City Department of Buildings licensed concrete testing laboratory authorized by the NYC DOS to issue concrete mix designs. . Each unit price for standard mixes listed herein shall include the cost to the Contractor for a once-a-year submittal to NYCT's Engineer. NYCT's Engineer may order an additional mix design(s) not listed herein to be performed and delivered. The additional mixes shall bear the sign and seal of a New York State licensed Professional Engineer or a New York City Department of Buildings licensed concrete testing laboratory authorized by the NYC DOS to issue concrete mix designs. The cost of designing the additional mix(es), shall be compensated by NYCT. The additional mix(es) shall have water/cement ratios as the mixes listed herein, and the actual cement factor (CF) per cubic yard shall meet or exceed the CF listed in this these Specifications.

The Contractor warrants and is required to insure that the mix supplied will give the required yield of concrete. If the mix supplied does not give the required yield, NYCT will pay only for the cubic yardage of concrete actually delivered to its site, regardless of the weights supplied at the batching plant.

All materials shall be proportioned by weight except of water, which may be measured by volume, if controlled to the satisfaction of the Engineer. The device for the measurement of water shall, under operating conditions, be accurate to 1.0 per cent. The method of measurement shall be such as to secure the specified proportions in each batch.

The proportioning of the ingredients, the mixing of the concrete and the loading of each batch shall be in accordance with the approved mix design and shall be subject to the acceptance of a NYCT's Inspector.

Approved facility shall be provided so that proportion and quality of materials can be verified accurately by the NYCT Inspector.

The Contractor shall make additions, required by the Engineer, of admixtures to the concrete at the place or time indicated by the Engineer for the purpose of coloring the concrete, obtaining quick set, or for any other necessary purpose.

When delivery is ordered by the Engineer during freezing or likely to be freezing weather, the approved antifreeze shall be added to the concrete as an additive. Chloride type antifreeze shall not be used.

When ordered by the Engineer, a black coloring admixture shall be added to the concrete. The coloring admixture shall be H1-Black or approved equal.

Water-cement ratio (percent of water to cementitious material by weight) shall be calculated in accordance with American Concrete Institute (ACI) 211.1: a maximum of 0.40 for concrete and 0.33 for high density concrete.

The Contractor shall notify the Engineer on a timely basis and submit and/or confirm a mix design for NYCT's approval on either:

1. Annual basis at the start of construction season;

2. Any significant change in materials and/or proportioning.

NON-PUMPABLE, TYPE 'A' CONCRETE MIXES WITH MAXIMUM AGGREGATE SIZE OF 1 INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/Cu. Yd.
		Cement	Sand	Aggregate	
1A35	3500	610	1220	1750	38
1A40	4000	700	1100	1750	40

NON-PUMPABLE CONCRETE WITH MAXIMUM AGGREGATE SIZE OF 3/4INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEA in Oz.	Water Reducer in Oz.
		Cement	Sand	Aggregate			
75A40	4000	660	1285	1775	32	12	20

LIGHTWEIGHT CONCRETE MIXES WITH MAXIMUM AGGREGATE SIZE OF 3/8 INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEA in Oz.	Water Reducer in Oz.	Super-plasticiser in Oz.
		Cement	Sand	Lightweight Aggregate				
LW35	3500	658	1430	675	34	5.8	19.0	NIA
LW40	4000	705	1350	680	34	6.5	*NIA*	80

NON-PUMPABLE CONCRETE WITH MAXIMUM AGGREGATE SIZE OF 3/8 INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEAin Oz.	Water Reducer in Oz.
		Cement	Sand	Aggregate			
NP35	3500	611	1240	1650	31	9	15

PUMPABLE CONCRETE WITH MAXIMUM COARSE AGGREGATE SIZE OF 3/8 INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEA in Oz.	Water Reducer in Oz.	Super-plasticiser in Oz.
		Cement	Sand	Coarse Aggregate				
P35	3500	660	1380	1500	31	6	N/A	60
P40	4000	752	1375	1600	30	6	N/A	75

CON ED MIX WITH AGGREGATE SIZE OF 3/4 INCH

Concrete Code	Concrete Strength at 28 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEA in Oz.	Water Reducer in Oz.	Super-plasticiser in Oz.
		Cement	Sand	Coarse Aggregate				
Con ED Mix	4000	660	1320	1750	30	6	N/A	75

SELF-COMPACTING CONCRETE FOR LONG-DISTANCE PUMPING (3/8 IN COARSE AGGREGATE)

Concrete Code	Concrete Strength at 7 days (psi)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Max Water gals/ CY	Air Ent-raining oz/CY	Water Reducer (oz/CY)	Polycarbo - xyl SP (oz/CY)	VM A oz/ CY	Retard er Oz/CY	Slump (in)
		Cement	Sand	Coarse Aggregate							
SCC-A	3000	715	1400	1700	33	10	--	50	--	--	6 to 8
SCC-B	3000	715	1400	1700	33	10	--	50	-	--	7 to 9

Attention: Mixes SSC-A and SSC-B differ by the slump only. Water Reducer, VMA and Retarder admixtures shall be added as needed and as directed by the Engineer. These admixtures shall be priced as add-ons, in addition to SCC-A and SSC-B unit prices. Also, see Article 14 of this Technical Specification for Retarder requirements.

CONCRETE OVERLAY MIXES

Concrete Code	Type of Concrete	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in Gal/ Cu.Yd	AEAin Oz.	Water Reduc. in Oz.	Super Plast. in Oz.	Silica Fume in lbs	Hard. Accel. In Oz.
		Cement	Sand	Aggregate						
OVE1	High Density	705	1141	1775	36	7	28	n/a	n/a	n/a
OVE2	High Early Strength	752	1194	1775	32	7	n/a	128	n/a	180
OVE3	Microsilica Hi Density	705	1141	1775	32	7	28	n/a	60	n/a
OVE4	Microsilica Hi Early St	752	1094	1775	33.6	10	n/a	144	50	190

Attention: Concrete strength for all overlays OVE1 through OVE4 shall be 4000 psi at 28 days

LUBRICATING GROUT

Concrete Code	Slump (in)	Dry Weight (lbs) per Cu. Yd. Of Concrete			Water in gallons/ Cu. Yd.	AEAin Oz.	Polycarbo xyl Super Pin Oz.
		Cement	Sand	Slag			
LG	7-9	650	2450	250	40	14	50

All slumps shall be 5 in. +/- 1 in. unless otherwise noted, except for mixes containing Super Plasticiser and/or High-Range Super-Plasitizer.

The Contractor shall provide additional High-Range Water Reducers (Super Plasticizer, Super-P, High range super plasticizer and Polycarboxylate) to be added to the mix at the discretion of the Engineer's field forces to adjust slump. Payment shall be made based on the Price Schedule items for High-Range Water Reducers.

ARTICLE 5 FILLING BATCHING TRUCKS (NOT USED)

ARTICLE 6 WATER REQUIREMENTS

The water used for mixing concrete shall be portable water. Salt water is prohibited. The mixing water shall be measured at the plant and added to the dry concrete mixture.

When proportioning, allowance shall be made for the moisture in the aggregates. The weight of free water in aggregates shall be compensated for by adding a like weight of aggregates. A check to determine such water content shall be made by the Contractor as often as required to give the true amount.

The Contractor shall be responsible for supplying all the water necessary to mix the concrete to the consistency required by the Engineer. The Contractor shall either provide trucks with sufficient water in their tanks or shall otherwise provide all necessary water, personnel and equipment to add water at the site.

The concrete shall have flowability and workability satisfactory to the Engineer, and meet the requirements specified. The workability of the concrete shall be determined by slump tests at the point of delivery, made in accordance with ASTM Method of Test C 143.

ARTICLE 7 MIXING

The transit truck-mixed concrete produced at a central mix (wet batch) concrete plant shall require up to thirty (30) revolutions. For each addition of water or admixture in the field, the concrete shall be mixed for at least 30 revolutions at mixing speed.

If admixes are to be added in the field a method of measuring the volume of the product shall be provided to the satisfaction of the Engineer.

Each truck mixer used for delivery of ready-mix concrete shall be equipped with electrical revolution-counting device mounted in a clearly visible position. Such the device shall have separate counters showing the number of drum revolutions at speeds within the mixing range plus the total number of drum revolutions and be installed to count number of revolutions of the drum only in the direction of mixing. The counter shall be of the positively tamper-proof type.

Truck mixers shall be top loaded, or screw loaded, as required by the Engineer. Unless otherwise specified, all loads shall be screw loaded. Mixers shall not be loaded beyond their rated capacity. Mixers shall be completely discharged before recharging and shall be flushed clean before reloading.

ARTICLE 8 AMBIENT TEMPERATURES

When the outside air temperature is forty (40) degrees Fahrenheit or less, the concrete shall have a temperature of not less than fifty-five (55) degrees Fahrenheit, when delivered.

For weekend pours, when ambient temperature is 28 (twenty-eight) degrees Fahrenheit or less, the Contractor shall supply a mechanic, at no additional cost to NYCT, to assist with potential discharge breakdowns and pipe freeze-ups, and to assure a steady flow of the material.

ARTICLE 9 AIR-ENTRAINING ADMIXTURES

Air-entrained concrete, when specified, shall have an air content of neither less than five percent (5%) nor more than seven percent (7%), when tested in accordance with one of the following methods:

1. *Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method,* ASTM designation C 173 (for lightweight aggregates);

2. *Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method,* ASTM designation C 231 (for all other aggregates).

For arriving at the requirements on air-entrainment, the Contractor shall use an admixture conforming to the latest specifications for *Air-Entraining Admixtures for Concrete,* ASTM designation C 260, and shall be *Daravair* or *Darex AEA* by GCP Supplied Technology (formerly W.R. Grace Construction Products); *Sika Air* by Sika Chemical Corporation; MasterAir VR 10 (formerly *MB-VR* by BASF Construction Chemicals/Master Builders; MasterAir AE90 by BASF Master Builders or Eucon A*AEA-92* by The Euclid Chemical Company, or any other brand of air-entraining admixture evaluated and approved in writing by NYCT as an equal.

ARTICLE 10 HIGH-RANGE SUPER WATER REDUCER

High-Range Water Reducers (Super Plasticizers, Super-P, High range super plasticizers and Polycarboxylates) depending on type of concrete batch plant (central mixed vs, dry batch) High-Range Water Reducers may be required to be added to the concrete at the plant, as well as at the delivery point, at the discretion of the Engineer.

The Water Reducer shall never be mixed with dry cement or pre-mixed with air-entraining agents. Special care shall be taken to protect the Water Reducer from freezing. Water Reducer, when approved for use in concrete by the Engineer shall be used in such proportions that slump requirements for concrete shall conform to provisions of these Specifications.

Super Plasticizer admixtures shall be free of calcium chlorides, per ASTM designation C 494 Type F, and shall be *Daracem-19* by GCP Applied Technologies Inc. (formerly Grace Construction Products); *Sikament* by Sika Chemical Corporation; *Rheobuild 1000* or *Glenium 3030* by Master Builders; or *Eucon 37* by The Euclid Chemical Company, or any other brand of water reducer admixture evaluated and approved in writing by NYCT as an equal.

Polycarboxylate-based Super Plasticizer admixtures for self-compacting concrete shall meet ASTM designation C 494 Type F, and shall be *Glenium 7500 HES* by BASF Construction Chemicals/Master Builders; or *Plastol 5000* and 6400 by The Euclid Chemical Company, or NYCT approved equal or any other brand of water reducer admixture evaluated and approved in writing by NYCT as an equal.

ARTICLE 11 WATER-REDUCING ADMIXTURES

Water reducing admixtures shall conform to the requirements of ASTM Serial Designation C 494, Type A and shall be *WRDA w/Hycol* or *Daracem* 55 by GCP Applied Technologies Inc. (formerly Grace Construction Products); *Plastocrete 161* by Sika Chemical Corporation; *Pozzolith 322-N* by Degussa Admixtures/Master Builders; *Eucon WR75, Eucon WR89* by The Euclid Chemical Company, 200N, 7620 by BASF Master Builders or any other brand of water reducer admixture evaluated and approved in writing by NYCT as an equal.

Water-reducing admixtures shall be added to mixing water, coarse aggregate or fine aggregate at the batching plant or at the delivery location, special care being taken to prevent the direct contact of the undiluted water-reducing, set-retarding agent with dry Portland cement. In the event air-entraining admixtures are used with water-reducing admixtures in the same batch of concrete, each agent shall be added separately from separate dispensers to prevent direct contact of the undiluted agents.

Water-reducing admixtures, when approved for use in concrete, shall be used in such proportions that slump requirements for concrete shall conform to the provisions of these Specifications.

ARTICLE 12 WATER-REDUCING,SET-RETARDING ADMIXTURES

Water reducing, set-retarding admixtures, mostly for use in summer months shall be free of calcium chlorides, of the hydroxylated carboxylic acid type, conforming to the requirements of ASTM Serial Designation C 494, Type D, and shall be *Daratard-17* by GCP Applied Technologies Inc. (formerly Grace Construction Products); *Plastment* by Sika Chemical Corporation; MasterSet R 100 (formerly *Pozzolith 100-XR)* by BASF/Master Builders; *Eucon Retarder-75 or* Eucon Stasis by The Euclid Chemical Company, MasterSet DELVO by BASF/Master Builders, or any other brand of set retarding admixture evaluated and approved in writing by NYCT as an equal.

Water-reducing, set-retarding admixtures shall be added to mixing water, coarse aggregate or fine aggregate at the batching plant or at the delivery location, special care being taken to prevent the direct contact of the undiluted water-reducing, set-retarding agent with dry Portland cement. In the event air- entraining admixtures are used with water-reducing, set-retarding admixtures in the same batch of concrete, each agent shall be added separately from separate dispensers to prevent direct contact of the undiluted agents.

Water-reducing, set-retarding admixtures, when approved for use in concrete, shall be used in such proportions that slump requirements for concrete shall conform to the provisions of these Specifications.

ARTICLE 13 WATER-REDUCING, SET-ACCELERATING ADMIXTURES

Water reducing, set-accelerating admixtures shall be free of calcium chlorides, of the hydroxylated carboxylic acid type, conforming to the requirements of ASTM Serial Designation C 494, Type C or E, and shall be *Polarset* by GCP Applied Technologies Inc. (formerly Grace Construction Products; *Plastocrete 161 FL* by Sika Chemical Corporation; MasterSet FP20 (formerly *Pozzutec 20)* by Master Builders; AC534 – by BASF/ Master Builders; or *Aceelguard 80* by The Euclid Chemical Company, or any other brand of set accelerating admixture evaluated and approved in writing by NYCT as an equal.

Water-reducing, set-accelerating admixtures shall be added to mixing water, coarse aggregate or fine aggregate at the batching plant or at the delivery location, special care being taken to prevent the direct contact of the undiluted water-reducing, set-accelerating agent with dry Portland cement. In the event air-entraining admixtures are used with water-reducing, set-accelerating admixtures in the same batch of concrete, each agent shall be added separately from separate dispensers to prevent direct contact of the undiluted agents.

Water-reducing, set-accelerating admixtures, when approved for use in concrete, shall be used in such proportions that slump requirements for concrete shall conform to the provisions of these Specifications.

ARTICLE 14 HARDENING ACCELERATOR AND RETARDER ADMIXTURES

The hardening accelerator shall be free of calcium chlorides and of any other intentionally added chlorides. It shall not initiate or promote corrosion of reinforcing steel, present in the concrete. The hardening accelerator shall conform to ASTM C 494, Type C, and AASHTO M-194, Type C, and shall be Sika *Rapid-1* by Sika Chemical Corporation, or any other brand of hardening accelerator admixture evaluated and approved in writing by NYCT as an equal.

The hardening retarder shall be free of calcium chlorides and of any other intentionally added chlorides. The hardening retarder shall conform to ASTM C 494, Type D, and shall be *Eucon WO (used as a retarder)* or any other brand of hardening retarder admixture evaluated and approved in writing by NYCT as an equal.

ARTICLE 15 VISCOSITY-MODIFYING ADMIXTURES

Viscosity-modifying admixtures may be used only with explicit, prior approval of the Engineer and shall be *Visctrof* by Euclid Chemical Company; *MasterMatrix* VMA 358 by BASF/Master Builders; or any other brand of viscosity-modifying admixture evaluated and approved in writing by NYCT as an equal.

ARTICLE 16 CONCRETE PUMPING

The Contractor shall provide one, two, three or four concrete pumps, as directed by the Engineer, with a minimum two (2) operators for each pump deployed. The concrete pump(s) shall be a Schwing Series 5000 trailer-mounted concrete pump, truck-mounted boom, or equal and subject to NYCT approval. In addition, each primary pump shall be backed-up with a stand-by pump in case of the primary pump malfunction. The back-up pump(s) shall be operated by the same operators, who already work around the primary pump(s). The Contractor shall insure that the pump(s) operate during the entire duration of the pour, including sufficient fuel.

The concrete pumps shall be furnished on a per hour basis. The time shall be computed as the actual time from arrival of the pump(s) at the site to departure of the pump(s), plus two (2) hours; however the Authority shall pay a minimum of eight (8) hours for any given pour when pump(s) are deployed.

The pump(s) shall be suitable to deliver concrete up to a distance of three thousand (3,000) feet horizontally, and one thousand (1,000) feet vertically. The Authority shall be responsible for providing a suitable area for the concrete pump to be set, lighting in work area, if necessary, and water on work site· for washout purposes. During pumping operations the Contractor shall furnish an uninterrupted supply of concrete, and shall stage the trucks appropriately to assure no interruptions. NYCT shall supply piping to connect to the Contractor's concrete pump(s). The diameter of the piping provided by NYCT may be either four (4), five (5) or six (6) inches. The Contractor is required to furnish the necessary sizes and quantity of pipe reducers for proper operation.

Concrete for pumping shall have properly graded uniform aggregates. Materials shall be uniformly and consistently batched and mixed thoroughly. Gradation of sizes of coarse aggregates shall meet requirements of ASTM C 33, and be as close to the middle range as possible. Provisions shall be made for elimination of oversized particles in the concrete by screening and by careful selection of aggregates.

Unless approved expressly by the Engineer, lubricating mix shall not be included in the concrete placement, and shall be properly disposed of by the Contractor. The Contractor may also provide slurry at 28-day strength of 4000 p.s.i.

ARTICLE 17 SECOND PLANT ON WEEKEND STAND-BY

To assure the continuous supply of the pumpable ready-mix concrete for NYCT's Track Pours, which may require in excess of estimated four hundred and fifty (450) cubic yards of concrete, the Contractor shall maintain the second plant on stand-by.

NYCT will notify the Contractor at the time of ordering the concrete for such Truck Pour about the necessity of the second plant stand-by. Once requested, the Contractor agrees to put the second plant into production within two (2) hours after being directed by the Engineer. The stand-by plant shall be located within approximately five (5) miles from the first plant.

The additional charges for the second plant weekend stand-by will be paid by NYCT, as described in the Contract documents. Should the production from the second plant become necessary, other billable charges will be paid by NYCT in accordance with the Price Schedules as applicable. The price of the weekend stand-by shall be limited to Contractor's necessary expenses to prepare the plant so it may become operational within two (2) hours after notification by the Engineer.

ARTICLE 18 ADDITIONAL CONTRACTOR REQUIREMENTS

A The Contractor shall have multiple concrete plants available, located so as to ensure timely deliveries to various Work sites within the territory in accordance with the Contract documents. Each of Contractor's plants shall be capable of providing at least five hundred and fifty (550) cubic yards of concrete per each Track Pour. Each plant shall be: i) on the approved plant list of the New York State Department of Transportation; and ii) have and maintain certification by the National Ready Mix Concrete Association (RMCA); and iii) have a testing laboratory. Each plant shall have more than one hopper to dispense ready-mix concrete materials. The plants shall not be located in primary residential areas, since most of the concrete is to be provided for Track pours will be required on evenings and weekends. The Contractor's trucks shall have acceptable means of access and egress at all plants, which shall not impede concrete deliveries out of the plant.

B. The Contractor shall have a minimum of twenty (20) fully functional ready-mix trucks available to assure continuity and quantity of concrete, as ordered by the Engineer. The Contractor shall be able to furnish up to twelve (12) ready-mix trucks per hour at any Work site when ordered by the Engineer. When concrete is to be provided for a Track Pour all trucks shall be of identical size and contain the same quantity of concrete, except as directed by the Engineer. The standard truck for Track Pours (generally weekend deliveries) shall be NYS DOT-approved, twelve (12) cubic yards capacity, including admixtures.

C. The Contractor shall meet all applicable standards for plants, drivers and other aspects of ready-mix concrete delivery referenced in Building Code 1905.8.2 by New York City Department of Buildings.

D. Each of Contractor's drivers shall have and maintain the national standard certification for concrete mixer drivers of the National Ready Mix Concrete Association / Concrete Delivery Professional (NRMCA / CDP).

E. Each truck to be used for the Work shall:

1. Meet New York State-approved safety standards; and carry a current NYSDOT approval sticker.

2. Be radio-dispatched;

3. Be capable of being loaded either from top or by screw loading;

4. Have sufficient heated auxiliary tanks to transport the admixtures separately, with automatic mixing at the field.

5. Be equipped with an electrical revolution-counting device mounted in a clearly visible position. Such the device shall have separate counters showing the number of drum revolutions at speeds within the mixing range plus the total number of drum revolutions and be installed to count number of revolutions of the drum only in the direction of mixing. The counter shall be of the positively tamper- proof type.

F. The Contractor shall be responsible for providing all necessary road service and immediately replace any truck, which may be inoperable for any reason.

G. The Contractor shall furnish to the NYCT a loaner radio communication unit, set for frequencies used by Contractor's trucks, so that NYCT representative(s) may talk directly from the Work site to the truck drivers, and determine their location and travel time to drop site. The contractor assumes all risk of loss or damage to the radio.

[END OF SECTION]