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F. No. 23(28-I)/CPM/F 1/PWD/2016/ 377

Date: - 9-2-16

Inspection Note

**Sub: - Inspection Note for the work of "Comprehensive Development of Corridor (Outer Ring Road) between Madhuban Chowk to Mukarba Chowk."**

Inspected the site of Madhuban Chowk to Mukarba Chowk on 09.02.2016 along with the SE, F-14, Dy. Project Manager and Project Manager of M/s. ITD Cementation.

Started the inspection from L.H.S. near A-1 ramp. The work of footpath, underdeck finishing etc. were in progress. Walked down from A-1 ramp to Hyderpur Canal and following are the observations: -

**FOOTPATH**

The fixing of tiles in footpath work has not been done properly and at most of the places, tuck tiles are not continuous. At few places, tiles were found to be settling down. Near K.N. Katju Marg, where the footpath tiles were being laid, it was shocking to note that the drain covers have not been placed properly abutting to each other and most of the locations, joints have not been sealed with mortar and at few locations, only geo fabric has been pasted that too only on top and not on sides without sealing the joints. It is regretted to point out that despite my continuous verbal and written directions, the footpath work is not being carried out properly.

At few other places, it was found that the sand between the joints was found missing and it is felt that, the same might have seeped into the drain. The entire footpath, where paver tiles have already been laid, should be checked at regular intervals w.r.t. the proper sealing of the drain covers (top and sides both) and fixing of geo fabric. The strength of the tiles should also be got tested after collecting samples from the laid footpath as already directed.

The different precautions and steps/sequence for construction of footpath were again explained in detail to everybody present at site and SE, F-14 was directed to ensure its compliance. It was also suggested that before allowing laying of footpath tiles, requisite length of the stretch like 100 m to 200 m should be prepared by cleaning of drain, then re-setting of drain cover (to ensure abutting each other to have minimum thickness), then sealing with mortar from top and sides and thereafter fixing of geo fabric. These stages should be first checked by the field staff before allowing fixing of paver tiles. Various steps/protections to be taken for construction of footpath is reiterated to as below: -

The following precautions should be taken by all SEs/PM/EE: -

1. Height of the footpath as 150 mm above final road level should be ensured until and unless there is any site constraint.
2. First of all, all the drain covers should be placed abutting each other and while doing so, cleaning of the drain should also be done simultaneously.
3. After sealing of all the joints with mortar, the *Geo fabric sheet* should be fixed over the joints (both on top and sides). This is a very important activity to be monitored closely in a systematic manner.
4. Thereafter, the drain should be connected to the main carriageway and service roads through bell mouth pipes etc.



5. Thereafter, the kerb stones should be fixed for footpath.
6. Then, PCC should be laid in the Kutcha portion adjacent to drain (and below footpath).
7. And thereafter, paver tiles should be fixed.
8. For fixing of paver tiles, quality and thickness of fine sand to be used for bed below paver tiles and Jamuna sand for filling of joints of paver tiles should be ensured as per agreement provisions.
9. Continuity of tuck tiles should be ensured. At different locations, ramps in the footpath should be made for physically challenged persons.
10. For fixing of paver tiles, surface compactor should be used.
11. Minimum filling with mortar at the end of paver tiles may be ensured by fixing of kerb lines as per dimensions of paver tiles.
12. Manhole covers should be perfectly levelled with the adjoining paver tiles. At number of locations, either its level is above the tiles or below the tiles which is not acceptable.
13. The gap between the tile and manhole cover frame should be filled up with rich concrete, then properly finished and line engraved in line with the joint of the tiles so that it looks nice. At number of locations, these gaps have been filled with mortar in a crude way. At certain location, even when the tile in the gap can be accommodated, the same has been filled with the concrete/mortar.
14. As already directed earlier, at regular intervals in completed portion of footpath, tiles may be got removed to check the compliance of above directions. It should also be especially checked that vertical gap (on sides) between the manhole cover is also properly sealed with the mortar and /geo textile material so that sand does not seep into the drain. This exercise is very important as at number of locations, these deficiencies have been found and tiles have been observed settling down. To ensure the proper strength of the tiles, while doing the above exercise, strength of the tiles should also be got checked.
15. Proper record of such checking may be maintained to avoid any confusion later on.
16. Once a stretch is complete, the spare tiles/spare sand should be removed and surface should be properly cleaned.
17. The joint of the kerb stone should be properly sealed as at few locations, it has been observed that during laying of tiles/PCC below tiles, the kerb stones have been disturbed. Such kerb stones should be properly reset and fixed with the mortar.
18. Continuity of bell mouth pipe into the drain should be ensured.

**It should also be ensured that before taking over the footpath, the drain below the footpath is completely and thoroughly cleaned.**

***The footpath work which was in progress should be totally dismantled.***

At few places, the height of the footpath should also be checked w.r.t. approved UTTIPEC drawings.

The undersigned has been pursuing since last more than six months for starting work of footpath at the end of ROW, especially on L.H.S. near A-1 ramp which has not been started till date. The agency was directed to immediately start the same as certain resistance from the residents is likely to be faced which will be faced which has to be sorted out.

#### **Underdeck finishing of elevated corridor**

The SE, F-14 was directed to ensure that the complete deficiency list, span-by-span, should be prepared after thoroughly observing the elevated corridor from down below, above and inside and before doing the underdeck finishing, all the repairs should be carried out on priority. The repair may include repair of diaphragm spine segment fins, repair in the shear stub protruding out from the diaphragm spine segments, repair of spalling of concrete at the joints of spine segments, cutting of reinforcement for hook provided in fascia panel of crash barriers and its covering with epoxy etc. While doing the underdeck finishing, the concrete slurry along the lateral stitch portion should be removed and joints should be properly grinded. The gap filling at the junction of horizontal fins/vertical fins of wings segments with side face of spine segments should be properly sealed with proper material depending upon the size of the gap. The smaller holes along



the lateral stitch/deck continuity concrete portion, made for holding the shutter for concreting, should be filled with proper material using like foam or backer rod etc. from bottom before doing painting so that these are not visible, as being done in the stretch from Vikaspuri to Meerabagh.

The agency was directed to prepare one sample after completing the repairs and underdeck finishing within 2-3 days. The SE, F-14 should personally check all these things.

At number of places, it was observed that the bottom shutter/ply used for shuttering of deck continuity/shear stub etc. has not been removed. All these shutters/clothes for plugging during the casting of crash barrier etc. should be removed. At lot of places, concrete has spilled over the fascia panels, RE wall panels etc. which should be cleaned before doing anti-carbonation paint.

Lot of malba was found lying around the footpath in green belts which should be removed immediately.

The work of fixing of rain water pipes has not been started till date.

Then, went to the Mukarba Chowk flyover near A-2 ramp and it was directed to remove the malba which has been dumped on L.H.S. and R.H.S. at the end of widening of road. The RE wall work done beyond the widened portion of slip road on both sides of A-2 ramp should be properly protected as discussed at site.

Then, took the round of entire site and it was observed that the footpath work going along the Madhuban Chowk underpass on R.H.S. was not going on properly.

*The SE, F-14 was also directed to ensure that necessary mandatory tests are carried out as per agreement provisions. He was also directed to ensure that the defects are pointed out during execution itself so that the same are not repeated and rectified then and there.*

*9/2/16*  
*ek* Chief Project Manager  
(Flyover) 1, PWD

**Copy to:-**

- (1) The E-in-Chief (Projects), (Flyover) 1, PWD, 12<sup>th</sup> Floor, MSO Building, I.P. Estate, New Delhi for kind information please.
- (2) The Pr. Chief Engineer (Projects), PWD, 9<sup>th</sup> Floor, MSO Building, I.P. Estate, New Delhi for kind information please.
- (3) The OSD (PWD) to Minister, O/o of the Minister, Power, PWD, Health, Industries & Home, GNCTD, A-Wing, 7<sup>th</sup> Level, Delhi Secretariat, I.P. Extension, New Delhi-110002 for kind information please.
- (4) The Superintending Engineer, F-14, PWD for information & necessary action please.

*9/2/16*  
*ek* Chief Project Manager