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Mr. Garry Mount, MBIAT,
4a Elm Grove South,
Barnham,
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24 October 2013

KEH/sep/5013

Dear Mr. Mount,

re: **Conversion of Existing Dairy Barn into Two Storey
Domestic Cottage at Sack Lane, Lidsey, Bognor Regis.**

In accordance with your instructions I did attend the above site on Thursday, 16th October 2013 and carried out a survey and inspection of the existing dairy farm barn with regard to its suitability for the proposed conversion to a domestic cottage, all as generally indicated on your architectural drawing nos. 2012/01 & 02a.

My survey was carried out in dry weather conditions and only the structural aspects of the existing barn building were inspected and reported on hereunder.

Site Inspection

The main original barn was rectangular in plan and had a slate covered pitched roof over.

The main side and gable walls were of solid flint work with brick coin returns at corners and openings. The solid construction measured a thickness of approximately 340mm.

It appears that the original barn structure was of a lean to construction supported on main timber beams spanning across and falling south to north in five bays. The original main beams remained in position but the original roof covering had been removed to allow the walls to be extended in height on all elevations to receive a new pitched roof construction. The extended walling is of block and brick construction up to a new common eaves level and supports new pitched roof timber trusses spanning north to south. The trusses appear to be at approximately 600 centres and supported the new pitched roof covering of felt, battens and grey slate tiling with new uPVC gutters and rainwater pipes.

To the west end of the original barn a more recently constructed extension had been formed following the profile of the existing main barn. The new walling was of solid 225mm brickwork construction up to a height of 1M below eaves level with the top section of 100mm block work inner skin and 100mm brick

lined externally with 50 x 100mm stud work clad externally in feather edge boarding.

The pitched roof construction consisted 50 x 150mm rafters with collar struts at 400 centres with supporting beams spanning across extension in mid span of collars. The pitched roof was clad to match the existing main barn.

None of the existing foundations were exposed but it is thought likely that they consisted either of a concrete strip or corbeled brick detail. They appear to have satisfactorily supported the walling construction as there was no significant movement or structural cracking observed, although a small amount of bulging in some isolated areas was observed.

The ground floor was covered in a concrete slab, thickness unknown, and a considerable amount of crazed cracking was observed. Lintels over existing openings appeared to be in reinforced concrete or timber.

Conclusion

Without going into what is considered unnecessary detail, it is sufficient to state that the existing structural elements of foundations, walling and pitched roof construction are structurally suitable for the proposed conversion providing that the following details are adhered to during the reconstruction and renovation.

Construction/Renovation Details

1. It is assumed that the single storey timber framed outbuildings to the north side supported on timber posts and beams and covered in corrugated iron sheeting will be demolished and removed.
2. The existing foundations should be exposed locally in isolated areas to ascertain the foundation detail. Engineer to record detail and check suitability to support the small amount of additional loading imposed by the new construction.
3. The existing concrete internal ground floor slabs should be utilised as a hard core base and receive three coats of 'Synthaproof' turned minimum 600mm up sides of internal walls to receive a new 150mm thick concrete slab with mesh reinforcement. An expansion joint should be provided in mid span and a 12.5mm 'Flexel' joint should be provided at the abutment with the internal walls. New slab to receive insulation and screeded finish to Architect's specification to achieve the required 'U' value. This detail will sufficiently raise the ground floor level above the existing ground level.
4. The new ground floor slab may have to be thickened in the area of the new internal fireplace where a concentration of load is likely.
5. The existing external main walling to receive a new internal skin of timber framed studwork off a sole plate incorporating a cavity and insulation to meet with Architect's specification and required 'U' value. This stud walling should extend to eaves level with new header plate and be tied back to the inside face of the main walling with stainless steel wall ties at 450mm centres vertically and 750mm centres horizontally. The studwork should also be stabilised with timber noggins in mid height positions between floor levels. The new internal face should be covered with an insulated plasterboard.
6. The new internal partition walling from ground to first floor should be in block work construction built directly off the new ground floor slab to receive designed timber first floor construction

suitably framed with beams and lintels.

7. New and existing openings in existing walling should be bridged with designed precast concrete lintels or steel beams.
8. At first floor level the flooring should be designed to support all new stud work partitions as indicated.
9. When the new construction has reached first floor level the existing lean to timber roof beams should be cut out and removed.
10. The wall plate supporting the existing timber roof trusses should be strapped down to the inside face of the existing main walls with galvanised mild steel straps, five gauge x 20mm wide and positioned at 2M centres and extend 1.5M down the inside face and securely screwed into position.
11. Similar mild steel strapping to be provided at each gable end and screwed to underside of, at least, three main trusses.
12. It is recommended that a system of flat timber bracing is provided from the corners to the apex and screwed to the underside of the top flange of the trusses. Engineer to advise on site.
13. All existing roof timbers should be sprayed against insect infestation.
14. The external slate covering should be overhauled and checked for any damaged slates and holes in felt covering.
15. The underside of the trusses should be covered in plasterboard and overlaid with fibreglass insulation to Architect's specification to achieve the required 'U' value.
16. Externally, the existing flint walling and face brickwork should be checked as isolated areas may require some repair or repointing.

I trust that the above report and recommendations are sufficient for your requirements at this stage.

Yours sincerely,


K.E. HILTON